

INTERSTATE MEDICAL JOURNAL.

VOL. XII.

NOVEMBER, 1905.

No. 11.

ORIGINAL ARTICLES.

BLOOD VESSELS OF THE LYMPHATIC GLAND.

By W. J. CALVERT, M. D., Columbia, Missouri.

ASSISTANT PROFESSOR OF INTERNAL MEDICINE, UNIVERSITY OF MISSOURI, COLUMBIA.

In 1897¹ I described the distribution of the blood-vessels in the lymphatic gland of the dog; in 1901² the blood-vessels in the lymphatic glands of the human and monkey; and recently have been able to trace the circulation in the lymphatic glands of the horse and cow. In each the arrangement of the blood supply is the same.

In the dog, artificial injections were used. In the human, monkey, horse and cow, congestion due to plague served the purpose of artificial injections. The glands were fixed in Zenker's fluid, hardened in alcohol and stained with hæmatoxylin and eosin.

One or more arteries enter the gland at its hilus, pursue an independent course through the hilus stroma to the medullary substance. Here the arteries, arteriæ lympho-glandulæ, rapidly diminish in size by giving rise to numerous smaller arteries which enter the trabeculæ through which they are distributed to all portions of the gland, giving in their course, branches to the cords and follicles. Some of the arteria lympho-glandulæ follow a trabecula to the capsule of the gland where it branches. The smaller vessels run on the capsule to supply the capsule and the overlying areolar tissue. These vessels may anastomose with arteries which arise from the hilus to run around the gland.

Arteries to Cords.—Arteries for the cords, medullary arteries, leave the arteriæ lympho-glandulæ to enter smaller subdivisions of the trabeculæ in which they run to the cords. The arteries either pass to the center of the cord or immediately below the periphery of the cord give rise to a plexus of capillaries. When the artery passes to the center of a cord it runs parallel to the axis of the cord, giving rise throughout its course to arterial capillaries, which go to the periphery of the cord to form a rich plexus of capillaries lying just under the surface of the cord. The capillaries of this plexus unite to form veins, medullary veins, which soon unite with similar veins. These collecting veins enter the trabeculæ to join the venæ lympho-glandulæ; or they enter the center of the cord to return with the artery. These veins freely anastomose with veins from

surrounding cords to form a rich venous plexus. When the artery gives rise to the capillary plexus, immediately on entering the cord the arrangement and disposition of capillaries are as above described.

Arteries to Follicles—At the junction of the medullary with the cortical portions of the gland, the arteriæ lympho-glandulæ give off large arteries which run in an arched direction—parallel to the capsule—just



Fig. I.—Composite section of three follicles and the medullary cords of the mesenteric lymphatic gland of the dog. A, artery. B, artery to cord. C, follicular vein. E, artery to capsule. F, capillaries in periphery of cord. G, vein of cord. H, follicular artery. I, arterial capillaries in follicle. J, vein from capsule. L, trabecula. V, vein.

under the proximal ends of the follicles. From these arteries, branches are distributed to the cords and follicles. Arteries for the follicles pass to the centers of cords some distance below the proximal ends of the follicles to run parallel to the axis of the follicles. These arteries, arteriæ folliculi, penetrate the proximal ends of the follicles a distance equal to from one-fifth to one-third the entire length of the follicle, to divide into

a number of long, small, straight capillaries, which radiate in all directions toward the periphery of the follicle. Just beneath the surface of the follicle these capillaries turn or branch, run parallel to the surface of the follicle to form a capillary plexus. The capillaries of this plexus



Fig. II.—Shows origin, course and distribution of a long follicular artery. At origin, 34 microns; before dividing, 31 microns; capillaries in follicle from 7 to 8 microns in diameter. Human.

unite to form veins, *venæ folliculi*, which run near the surface toward the proximal end of the follicle, where they unite with similar veins from neighboring follicles to form the larger veins, *venæ lympho-glandulæ*, which run in the *trabeculæ* to the hilus of the gland.

The following variations in the course of arteriæ folliculi have been observed:

1. From the capsule passing through the lymph-sinus, surrounded by more or less connective tissues to the center of the follicle.
2. From a neighboring trabecula.
3. Two or more arteries may enter the proximal end or one side of the follicle. Diverging to break up into capillaries. Or one artery

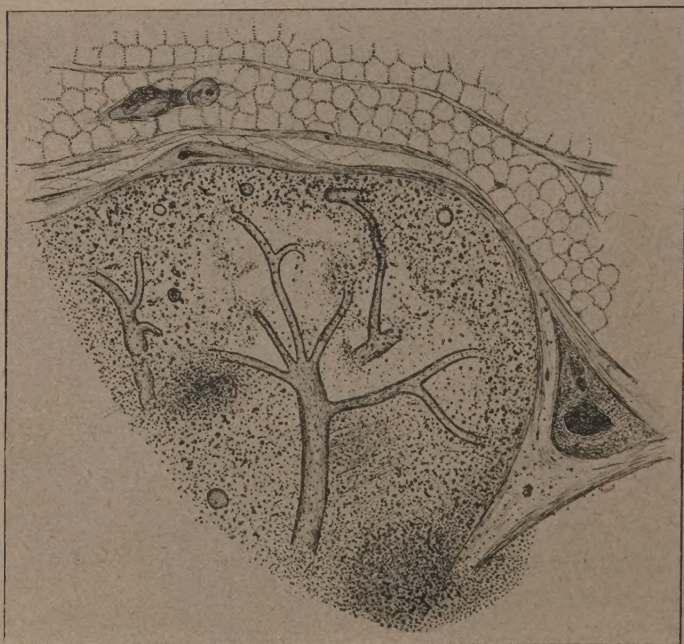


Fig. III.—A follicular artery. One of the long capillaries is seen to join a venous capillary in the periphery of the follicle; on either side of the follicle small veins are seen. Artery before dividing is 41 microns; capillaries from 8 to 10 microns in diameter. Human.

may enter the proximal end, the second, the side of the follicle. In either event, each artery is smaller than the single follicular artery.

Veins springing from the follicular capillary plexus may pursue one of the following courses:

- (a) The follicular vein may continue in a straight course some distance below the proximal end of the follicle to unite there with a larger vein or turn at a right angle and runs parallel to the surface of the gland.

(*b*) The follicular veins from the adjacent sides of two follicles may unite near the proximal ends of the follicles or at a lower level to run as described in *a*.

(*c*) The follicular veins may turn at a right angle to run under the proximal ends of the follicles.

(*d*) The follicular vein from opposite sides of a follicle may unite near the proximal end of the follicle and there join a larger vein (running

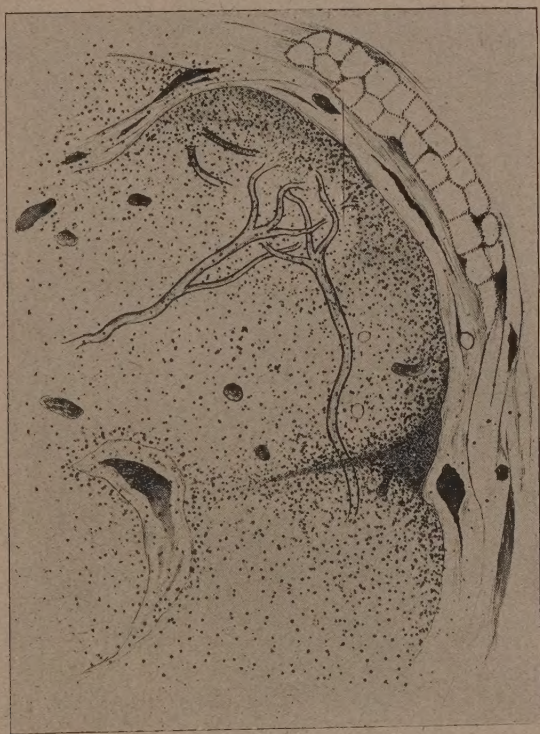


Fig. IV.—Double arterial supply to a follicle. Human.

under the proximal ends of the follicles) or the vein may continue as in *a*.

(*e*) The follicular vein may leave the follicle at a higher level, pass through the interfollicular septum and join the veins of a neighboring follicle.

The follicular and medullary veins unite with one another to form the venæ lympho-glandulæ or larger veins of the lymphatic gland. When a follicular vein pursues the course described in *a* it may turn at a right

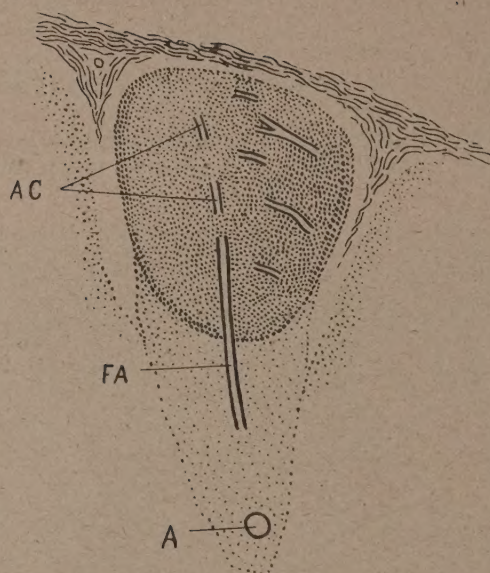


Fig. V.—Lymphatic gland of cow. A, large artery from arteriæ lympho-glandulæ. F A, follicular artery. A C, capillaries.

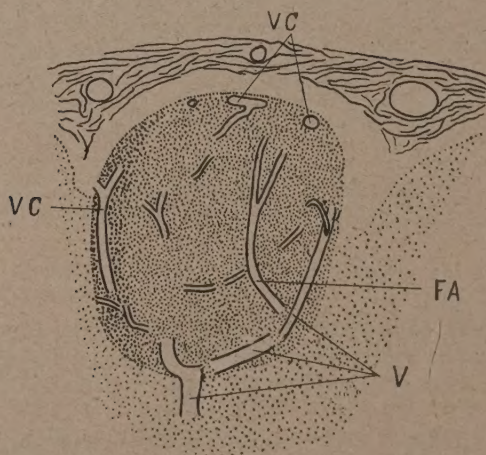


Fig. VI.—Lymphatic gland of horse. F A, follicular artery. V, follicular vein. V C, venous capillaries. Arterial capillaries are seen in the follicle.

angle to run parallel to the surface of the gland receiving in its course follicular veins from above and medullary veins from below, or it may unite with similar veins to form an arborescence; or it may turn at a right angle to run under the proximal ends of the follicle parallel to the surface of the gland receiving the follicular and medullary veins. The venæ lympho-glandulæ run in the trabeculæ and receive throughout

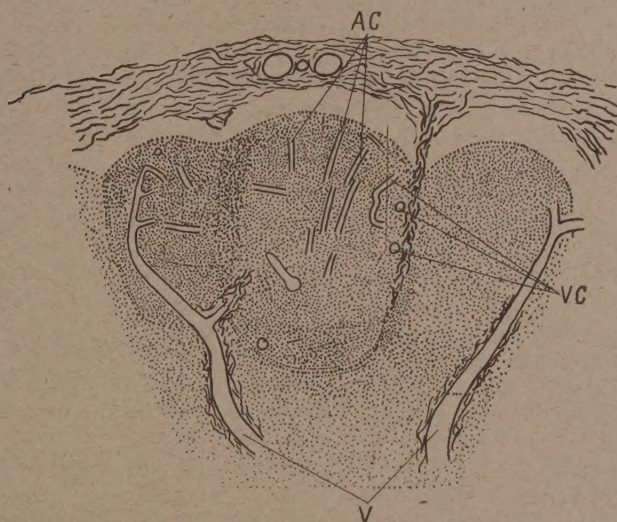


Fig. VII.—Three follicles of lymphatic gland of horse. V, two large follicular veins. V C, venous capillaries in center follicle. A C, arterial capillaries.

their course the veins from the medullary substance. They may or may not accompany arteries and leave the gland through the hilus.

The arteries on entering the glands give off a few small branches to supply the capsule and overlying areolar tissue. These arteries lie on the capsule. They anastomose with the arteries coming from the gland substance. The veins accompany the arteries, some sink into the gland, while others follow the artery to the hilus of the gland where they join the large veins.

REFERENCES.

1. W. J. Calvert: The Blood Vessels of the Lymphatic Gland. *Anatomeischer Anzeiger*, Bd., xiii, 1897, p. 174.
2. W. J. Calvert: On the Blood Vessels of the Human Lymphatic Gland. *Johns Hopkins Hospital Bulletin*, Vol. XII, 1901.

THE REFLEX OF THE TENDO ACHILLIS.

BY CHARLES GILBERT CHADDOCK, M. D., St. Louis.

The diagnostic value of variations of the reflex of the tendo Achillis has been recognized by neurologists only within the last few years. Five years ago this reflex was rarely or never examined by certain observers of deserved international reputation in neurology who now investigate it as a matter of routine, as has been the habit of all clinicians with reference to the knee-jerk since absence of the reflex of the patellar tendon (Westphal's sign) became generally recognized as an early indication of tabes dorsalis. The period of uncertainty about the exact significance of variations of the knee-jerk was long, and classic works still contain the statement that absence of the knee-jerk occurs rarely in normal persons. Naturally the same misstatement is made with reference to the ankle-jerk. Once and for all, it should be recognized that absence of these reflexes, even though there be no other sign of disease in the individual, is in and for itself an abnormality, since it is an exception to a rule so general that it must be regarded as a law. The widest clinical experience has led the best observers to this conclusion. To illustrate the clinical value of these reflexes, and as an introduction to special consideration of the variations of the ankle-jerk, the following clinical experience is briefly given:¹

A boy of ten years presented a Sydenham's chorea; one ankle-jerk was found to be absent. The child recovered from the chorea, but absence of the ankle-jerk persisted. The mother presented nothing abnormal, but gave a history of spontaneous miscarriage. At special request the father came for examination, and was found to be affected with unsuspected tabes, with a history of long antecedent syphilis. Examination of the spinal fluid showed slight abnormality in the child and marked lympho-cytosis in the father.

In parenthesis, it should be noted that the opinion that the reflexes may be altered in chorea might easily have been used to explain the abnormality observed in the child. The persistence of the absence of the reflex after recovery from the chorea was a demonstration that it was independent of the chorea itself, and it was finally explained by a plausible organic cause.²

Variations of the ankle-jerk are of greater importance than those of the knee-jerk, for two reasons: (1) Absence of the ankle-jerk usually occurs earlier in tabes than absence of the knee-jerk; (2) exaggeration of the knee-jerk is only readily and positively demonstrated by the co-existence of exaggeration of the ankle-jerk expressed in ankle-clonus (foot-clonus).

To test adequately and judge the deep reflexes, certain general precautions must be observed. Since they are elicited by a blow, it is best to

employ a well-made percussion hammer. A hammer having a metal head protected by soft rubber, and a handle of whalebone that permits a certain degree of flexibility, seems best adapted to the purpose. A little practice in the use of the hammer enables the examiner to graduate the force of the blow; and if the striking surface of the head be not too large, limited areas may be chosen for the delivery of the blow—points of value in estimating the facility and degree of the reflex response and in limiting the excitation to the place desired.

The limb to be examined must be relaxed as far as possible. It is not always easy to obtain relaxation of the muscles. Many persons, when attention is called to a limb by the examiner, immediately increase the normal tension of the muscles quite unconsciously, and in some cases considerable patience is required to attain the desired condition. In order to facilitate this, we resort to various measures: The subject is made to close the eyes, to direct the eyes to the ceiling, or his attention is distracted by conversation. A special means which is said to "reinforce" the deep reflexes is Jendrassik's procedure, which consists of causing the subject to make a strong muscular effort with the upper extremities, such as pulling while the hands are gripped one in the other, or by leaning the head forcibly backward against the hands with the fingers interlaced behind the occiput, or by merely clenching the fists. This procedure probably serves to induce relaxation of the lower limbs, and thus permits a reflex to appear, which without it is feeble or seemingly abolished. Instead of "reinforcing" a reflex, it removes an obstacle to its appearance.

In order to satisfactorily test the ankle-jerk, the subject must be made to kneel on a chair or bed with the bare feet and legs projecting freely beyond the base of support. The surface on which the knees rest should not be so hard as to cause uneasiness and consequent contraction of the muscles of the legs. If the muscles of the legs are relaxed, to favor which the subject may be made to grasp firmly the back of the chair or other object used as a support by the hands, the foot may be shaken easily by a passive movement given to the leg. The blow of the hammer should be delivered squarely on the tendo Achillis—not on the muscles³, not on its insertion at the heel. The normal reflex movement that follows the blow is plantar flexion (extension) of the foot on the leg. In some cases this reflex is so readily excited that it may be brought out without removal of the shoes; in a few cases it may be elicited if the examiner grasps the foot while the subject is seated with the heel resting on the floor, and taps the side or the posterior surface of the tendon. Should the reflex fail to appear in these simpler positions, resort must always be had to the kneeling posture with the limbs bare.

The jar caused by the blow of the hammer must not be taken for a reflex movement. To avoid this error, which is hardly possible after one has become familiar with the true reflex, it is only necessary to observe

the muscles of the calf at the moment the tendon is struck, when the muscles will be seen to contract if the reflex is present or excited; while if the reflex fail to appear the muscles will be seen to tremble only as a mechanical result of the blow on the tendon.

The ankle-jerk is always normally present, and its absence or exaggeration is always indicative of organic disease of the nervous system, with the single exception about to be described.

Fractures of long bones in the vicinity of joints, and chronic irritative processes affecting joints, may, and often do, cause exaggeration of the related tendon reflexes that cannot be distinguished from exaggeration of them due to organic nervous disease. This is a fact of observation, an explanation of which has not been found.

The ankle-jerk, like the knee-jerk, varies normally within wide limits in the extent of movement, in quickness, and in the facility with which it is excited—in the same person at various times and in various individuals examined. There is no precise measure of what constitutes a normal ankle-jerk when the reflex movement alone of the foot is considered. Therefore, though we may properly say that an ankle-jerk is feeble or lively, as the case may be, we should not by these qualifying terms indicate or imply that the reflex is pathologically altered in one sense or the other, without basing such a conclusion upon additional evidence.

In order to decide the question whether a given state of the ankle-jerk is indicative or not of disease of the nervous system, we must first exclude the possible influence of a joint-affection, the possible obstacles of fibro-tendinous retractions, and local disease of muscles (degeneration after too tight bandaging) upon which the movement depends. These disturbing factors excluded, we may consider the indications afforded by alterations of the ankle-jerk with relation to the nervous system.

The reflex of the tendo Achillis may be wanting, weak, or abnormally increased.

It is easy to determine its absence, but it should not be regarded as abolished until every precaution has been taken in testing for it—position, relaxation, Jendrassik's procedure, repeated examination.

To be sure that the ankle-jerks are abnormally weak is a much more delicate matter, since they may be feeble normally in one case as compared with another. We are only justified in concluding that there is diminished (abnormal) response where there is a distinct difference between the two, one being strikingly feeble or difficult to excite, the other lively and easily brought out and unattended with the accompaniments of pathologic exaggeration later described. With both ankle-jerks lively, but with one markedly in excess of the other, we should look for evidence to prove that the apparent excess is pathologic. This is often found in certain peculiarities that exaggerated reflexes present. However, it must be remembered that the pathologic processes that cause

alterations of the reflexes usually produce their effects slowly, and therefore it may happen that we examine the reflexes at a time when, though altered to some extent, we are unable to draw a conclusion from the condition found, and we are forced to give an opinion of probability and await events.

The frank and unequivocal proof that a lively knee-jerk is the expression of an organic lesion of the nervous system lies in the added phenomenon of foot-clonus (ankle-clonus). Here the exception (joint-disease) already mentioned, of course, holds good.

Some observers maintain that pathologic foot-clonus may occur in hysteria, in fatigue, and in other purely functional conditions. Babinski, whose clinical competence no one would dispute, has never seen true pathologic foot-clonus in a case of functional nervous disease. During several years, members of the Neurologie Society of Paris, in answer to a challenge, have presented several cases of "hysteria" in which true foot-clonus could be elicited; but every one of these cases which were followed proved to be hysteria associated with organic nervous disease; one in particular at autopsy was found to have a transverse myelitis, that had been marked only by hysteric symptoms save for the presence of foot-clonus. If the most competent neurologists of Paris have in the course of years been unable to demonstrate true foot-clonus in a functional nervous condition, it may be concluded that its occurrence in functional nervous disorders is so infrequent as to make a very remote possibility one that can be neglected from a practical standpoint.

Foot-clonus, as the term implies, is a clonic, rhythmic movement, induced or occurring spontaneously under certain circumstances. It is examined for as follows: With the subject seated or reclining, the limb is lifted and slightly bent at the knee, with one hand of the examiner at the knee as a support; with the other hand the examiner grasps the foot near its extremity (the sole resting in the examiner's palm), and then suddenly and forcibly presses the foot upward in dorsal flexion, and maintains the foot in this position by continued upward pressure of moderate force—the force necessary varies with the subject, and in any case that employed must not be excessive. With this manipulation, foot-clonus, if it can be induced, appears as a rhythmic movement of alternating flexion and extension of the foot on the leg, so rapid that it presents the character of vibration of moderate amplitude. The clonus ceases immediately with removal of the upward pressure of the examiner's hand. For the excitation of foot-clonus, as in testing for the deep reflexes in general, relaxation of the muscles of the limb is necessary. When spasticity of the limb exists, as is often the case in organic cerebral palsies and cases of transverse myelitis, the relaxation obtainable can only be relative in degree, but it must be real in the sense that there be no voluntary innervation of the limb.

True foot-clonus is not always as distinct or frank as the foregoing

description would imply. In many cases the vibratory movement continues but a short time; in others, the movements are not rapid and soon cease; in still others, it is difficult to induce them. There are cases in which it would be hazardous to conclude that a few vibratory movements were those of true foot-clonus, unless there were other independent signs to aid in judging their nature.

The difficulties attending appreciation of foot-clonus arise from the fact that there is a foot-clonus which occurs in normal individuals; and a false foot-clonus occurs in hysteria.

When the test for foot-clonus is made on a normal person, if the subject make a moderately forcible movement of extension (plantar flexion) against the hand of the examiner, two or three jerks may be felt as the foot is forced upward, due to successive efforts of the subject to resist the opposing force by a steady contraction of the muscles. Such movements do not occur if the muscles are relaxed. These need never be taken for true foot-clonus with a little care in making and repeating the examination.

On testing normal persons a true physiologic foot-clonus may be excited in about one of ten (Babinski), if the subject is able, after instruction, to put all the muscles of the leg in a certain state of resistive tension and maintain it. This normal and, according to Babinski, true foot-clonus does not in itself differ from the foot-clonus so common in disease of the motor tracts of the spinal cord, for it is rhythmically vibratory and continues while the upward pressure is maintained; but voluntary muscular tension is necessary for its production. This clonus seems to be of the same nature as the vibratory motion of the foot that can be produced at will. "If one raise the heel from the floor while seated and allow the weight of the limb to rest on the ball of the foot, by a voluntary effort a rhythmic movement can be excited—the heel dances up and down". Once excited this movement continues as long as the tension of the muscles is maintained.

The false foot-clonus of hysteria is characterized in certain cases by irregularity of the movement due to irregularity of innervation that produces tension of the muscles; in many other cases of hysteria the clonic movements are really of the nature of tremor. In the latter instance they are characterized by the peculiarity that once excited by upward pressure, they continue after the upward pressure has been removed; and sometimes in such cases, with the subject in the kneeling position for examination of the ankle-jerk, an identical phenomenon is induced by the blow of the hammer. In any form of false foot-clonus due to hysteria there is conscious or unconscious tension of muscles which makes the phenomenon possible.

The foot-clonus that occurs in some cases of chronic disease of the ankle-joint, as has been stated, does not differ from the true foot-clonus of organic nervous disease, and therefore in the presence of a nervous

trouble and affection of the ankle-joint it might be impossible to base any conclusion upon the presence of ankle-clonus unless all other signs of organic nervous disease were wanting, and the nervous symptoms present were clearly of a functional character. Then the clonus should be referred to the joint affection as its probable cause.⁵

Of this discussion we may make the following summary:

There are four kinds of foot-clonus: (1) True (pathologic) foot-clonus, occurring as an unequivocal sign of organic nervous disease, and distinguished by the rapidity and regularity of the clonic movements; by its occurrence with relaxation of the muscles of the leg; by its cessation with the arrest of the exciting upward pressure. Imperfect foot-clonus, similarly marked, has the same significance. (2) True (physiologic) foot-clonus, observed in normal persons, distinguished by the necessary accompaniment of tension of the muscles of the leg. (3) True (reflex) foot-clonus, occurring in association with chronic disease of the ankle-joint. (4) False foot-clonus, occurring in functional nervous disorders, distinguished by irregularity of the movements, or by continuance of the vibratory movements after removal of the exciting upward pressure, so that the vibration becomes a spontaneous tremor.

If we are able to determine clinically the enfeeblement, absence, or exaggeration of one ankle-jerk, or of both, what conclusion can be drawn from our observation?

For practical clinical purposes, it may be asserted that functional nervous conditions have no effect upon the reflexes in themselves, or, in any event, no effect that can be utilized for practical medical purposes. Therefore, actual enfeeblement or absence of the ankle-jerk tells us that there is an impediment or interruption in the reflex arc concerned, so that nervous energy passes through it feebly or not at all. As far as known, there is but one other cause for diminution or loss of a deep reflex: Complete solution of continuity of the spinal cord above the level of the point where the reflex arc passes through the spinal cord (Bastian).

If we have found a true ankle-clonus, we know that the reflex arc is intact. Exaggeration of the deep reflexes is caused only by disease or lesion implicating the motor tracts that lie wholly within the central nervous system. Therefore, pathologic ankle-clonus proves that at some point above the spinal center of the ankle-jerk there is an actual organic lesion of some kind implicating the fibres of the cerebro-spinal motor path that are related to the spinal motor centers controlling the muscles upon which the ankle-jerk depends.

Since these statements are true of all deep reflexes, we may make the following general rule:

Loss of deep reflexes proves the existence of organic disease of the reflex arc; exaggeration of deep reflexes proves organic disease of related cerebro-spinal motor paths.

REFERENCES.

1. Clinic of J. Babinski, 1905.
2. There is reason to regard chorea (hysteric imitation of it excepted) as an organic nervous disease, but the most careful search has thus far failed to reveal absence of deep reflexes in it that could not be explained by other conditions than the chorea itself. —Babinski.
3. Idio-muscular contraction may, and often does, occur when related deep reflexes are abolished.
4. Chaddock, *Outlines of Psychiatry*, p. 80.
5. A possible explanation of the exaggeration of tendon-reflexes related to diseased joints suggests itself: Irritation in a joint may induce reflexly increased tension or tone in related muscles and thus cause unconsciously a muscular state akin to that voluntarily induced to facilitate the occurrence of foot-clonus in normal persons.

3750 Lindell Blvd.

A STUDY OF THE ANATOMY OF CONGENITAL DISLOCATION OF THE HIP AFTER MANIPULATIVE REDUCTION*

BY NATHANIEL ALLISON, M. D., ST. LOUIS.

Our appreciation of the anatomical conditions that exist after the congenitally misplaced femoral head is manipulated back into its socket, depending as it does almost entirely upon the study of skiagrams and physical examination, is of a more or less indefinite character. In fact the anatomy of congenital hip dislocation, either before or after manipulative treatment, is rather more conjectural than positive. That this is true is due to the nature of the conditions, making it rarely possible to obtain material on which to base positive anatomical assertions. It may be assumed that each of these cases presents different anatomical features, that what is true in one case will not be true in the next, but it is at the same time probable that to all these cases certain facts of anatomy are common.

My object in this study is to describe the anatomy of the hips found in a case of double congenital dislocation which died in the fourth month after manipulative reduction.

The history of the case is briefly as follows:

A Navajo Indian girl, aged seven years. No family history or previous history. Is well developed and muscular, walks with characteristic waddle, has marked lordosis. Trochanters $1\frac{1}{4}$ inches above Nelaton's lines. Diagnosis, double congenital hip dislocation established by skiagram.

She was operated upon on October 20, 1904.

The age of the child and her muscular development made the reduction difficult. It was accomplished, however, in an entirely satisfactory manner according to the Lorenz technique. She was put into a double plaster of Paris spica in the position called by Lorenz the "primarstel-

*Presented by invitation at the Nineteenth Annual Meeting of the American Orthopedic Association, Boston, June, 1905.

lung" (right angle abduction). She recovered well and was soon about on a roller chair. In December she had diphtheria which left her in a weakened general condition. Early in January she developed symptoms of tubercular meningitis. She died January 24, 1905.

At the autopsy the entire pelvis with the upper half of each femur was removed. The disturbance of any of the structures that go to make up the hip articulations was carefully avoided. As a whole, this specimen, comprising the pelvis with the femora in right angle abduction, presented the following appearances: The bones of the pelvis are strong and aside from the acetabular region they are apparently of normal conformity, as are also the shafts of the femora. The thighs are flexed to a 90° angle with the vertical axis of the body and are abducted to the extent that their long axis are in the frontal plane. Each femur is externally rotated to slightly more than 90°, bringing the great trochanters below and behind into close relationship with the tuber ischii. The lesser trochanters point slightly forward and upward. A prominence made by either femoral head is visible just external to the margin of either acetabulum. The outer halves of the pectinei muscles are torn from their origin along the ilio-pectineal line, exposing to view the anterior portions of each joint capsule taut over the femoral head. The muscles have adapted themselves to the position as have the fasciæ latæ. The specimen was frozen and by means of a fortunate saw cut the right side was sectioned in a transverse diameter of the acetabulum and the mid-frontal plane of the femur.

Plate I shows a section of the right side and a partial dissection of the left side. The section shows the position of the femur relative to the acetabulum. The superior surface of the neck of the femur rests against the posterior inferior quadrant of the acetabular rim. A zone of about one-third of the femoral head is properly in the acetabulum, this zone being its upper and external aspect.

Plate II was made to show the section in greater detail—to allow a better view the head is held away from the floor of the acetabulum.

The acetabulum is not a spheroidal concavity, but is a broad and shallow depression. Its surface is covered by a layer of fat and connective tissue which is approximately 3 mm. in thickness. The deficient cotyloid ring appears at the posterior aspect of the rim, turned in on itself by the neck of the femur. An abnormally long ligamentum teres is present, it is a flattened membranous structure, pointed at the ends and with normal attachment to the femoral head. At no point is the joint capsule folded into the cotyloid cavity before the head. It is stretched over the head anteriorly, its posterior portion is redundant, exceedingly thick and thrown into folds. The head of the femur is not hemispherical, but is flattened on its internal aspect.

On the left side a dissection was made. Plate I shows the anterior view of this dissection. The adductors longus and brevis have been di-

vided, the psoas and iliacus cut away and the abductor magnus retracted. As before mentioned the outer half of the pectineus was torn from its origin at the time of operation. The anterior portion of the capsule is taut over the femoral head; the ilio-femoral band lies well to the outside of the head, due to its relaxation in this position. The lesser trochanter points forward, showing the amount of external rotation of the femur. During the dissection, evidences of old hemorrhages and laceration were seen, especially in the adductor group. The anterior division of the obturator nerve showed marked increase in size.

Histological examination revealed the fact that the muscular tissue of the adductor group, especially the adductors magnus and brevis, exhibited pronounced evidences of trauma. This was shown by fragmentation, degeneration, atrophy and a considerable effort at regeneration. Also that entire muscle bundles had lost the staining properties of their contractile substance, as had also the muscle nuclei in certain areas. These degenerated muscle bundles are sharply outlined by a number of regenerated muscle nuclei. Where fragmentation had occurred a considerable interval frequently separated the portions of the muscular elements involved, this interval being filled with connective tissue and muscle fiber debris. The intermuscular connective tissue is increased in amount. Old hemorrhage is evidenced by hematogenous pigments in the form of crystals of hematin scattered throughout the tissue of the abductor muscles. Examinations of portions of the obturator nerve show it to be the seat of an interstitial neuritis. The connective tissue of both epineurium and perineurium are much increased. Many of the axis cylinders composing the funiculi have degenerated, a portion showing no medullary sheath whatever.

The epineurium of the anterior division of the obturator nerve was found to be inseparably adherent to a mass of striped muscular tissue.

A dissection of the posterior surface of the left side is shown in Plate III.

Here the much shortened fascia lata, with the upper and posterior portions of the gluteus maximus, have been cut away, the gluteus medius separated from its origin and retracted; portions of the great sciatic nerve and the pyriformis muscle have been resected. This affords an unobstructed view of the *pelvitrochanteric muscles*, a group composed of the obturator externus and internus, the gemelli, the pyriformis and the quadratus femoris. In this the "primarstellung," the great trochanter, to which these muscles are attached, and the tuberosity of the ischium, are brought into close contiguity. Consequent to this approximation of origin and insertion this group of muscles has become much shortened, this shortening, is evident, preventing adduction and inward rotation of the femur, more especially the latter.

The left side was now stripped of tissue down to the bone and joint capsule.

An interior view of the joint is shown in Plate IV.

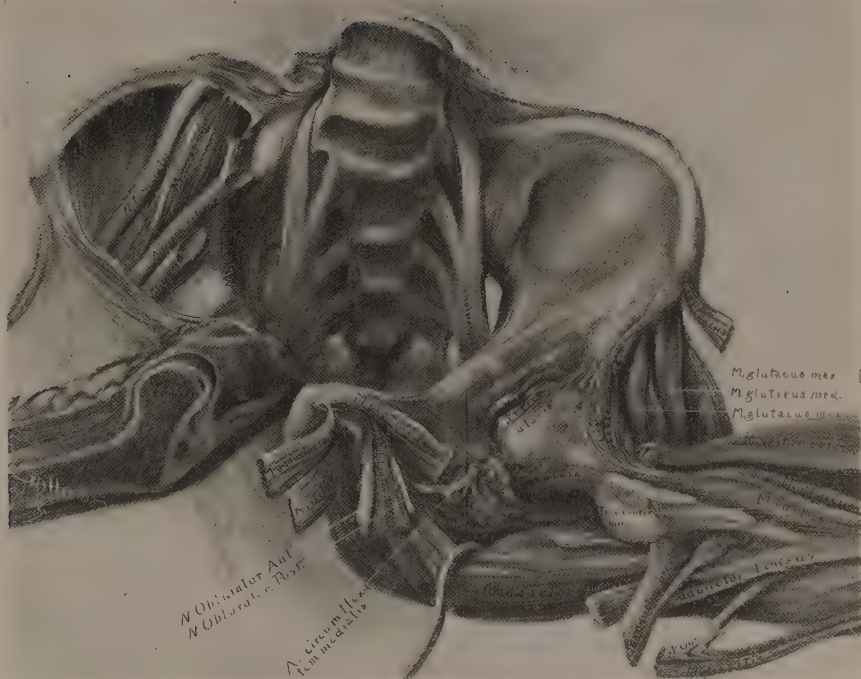


FIG. 1.—Anterior view of specimen, showing frozen section of right side and partial dissection of left side.



FIG. 2 —Detail drawing of frozen section of right hip joint.



FIG. 5.—Anterior view, femur adducted, internally rotated and flexed to angle of 90 degrees. Extension beginning.



FIG. 6.—Anterior view, showing ilio-femoral band taut, relaxation due to a continuation of the extension begun in figure 5.



FIG. 7.—Posterior view showing joint cavity, head of femur and posterior capsule.

The accessory bands that strengthen the capsule anteriorly are here shown. The ilio-femoral—inverted Y ligament—is relaxed and lies entirely external to the head. The pubo-femoral band is taut. Experimenting with this articulation I was forcibly impressed with the importance these ligaments bore to the reduction of this particular congenital dislocation, as well as the part that they might play in its retention.

In the congenital position the relations between the points of attachment of these bands are so changed that their development must necessarily make them more or less inconsistent with the reduced position. Also they are of non-elastic texture, being composed of white fibrous tissue. The pubo-femoral band stretches across from the anterior surface of the pubic ramus to the neck of the femur, external and superior to the lesser trochanter. It would necessarily be developed longer than the normal. The ilio-femoral band stretches from the lower part of the anterior inferior spine and an impression just below it to the anterior intertrochanteric line of the femur. It would necessarily be developed abnormally short.

These bands must have been of great importance in weight bearing, in consequence they are abnormally strong.

To the Lorenz procedure the pubo-femoral band would offer no interference, indeed in this case its action seemed to be favorable. Retracing the operative steps, the thigh is flexed and the head is brought behind the acetabulum, abduction is begun. The adductor group of muscles is stretched or ruptured. As abduction is continued a certain amount of external rotation is produced as this band begins to tighten. As abduction approaches the frontal plane this band is tightened to its limit. The head is now on the posterior rim. The attachment of this band to the femur now becomes a pivot about which the bone swings when the head is lifted into the socket by the upward pressure of the hand on the trochanter major. Extreme abduction would result in the rupture of this band. The head would then possibly pass forward through the rent to a sub-pubic or anterior position.

The ilio-femoral band is relaxed by the right angle flexion of the position, as abduction is produced the head of the femur passes forward and upward under this band. In the position of right angle abduction with the head reduced, this ligament has taken up a position well external to the head and is not on the stretch. Its influence on reduction after the Lorenz method is consequently nil. Its importance, on the other hand, when the after treatment is begun must be great. Being developed short and abnormally strong it would offer an absolute resistance to the return of the thigh to the normal position. In Plates V and VI its action in this case is shown. In Plate V the femur is adducted and internally rotated to the normal position, but it is flexed to an angle of about 90° . As extension in this position is begun this ilio-femoral

band becomes taut. Forcing the extension results in dislocation, as is shown in Plate VI. The head being thrown against the posterior superior quadrant of the acetabulum, which is markedly deficient in development, and against the posterior capsule, it meets little resistance and is forced out of the acetabulum.

The capsule was now cut along the posterior margin of the acetabulum. This allows a good view of the joint cavity and is shown in Plate VII.

The entire upper end of the femur is bent slightly forward from the shaft. The head of the bone is irregularly faceted, and is conical rather than spherical in shape. The neck is short and is placed at an angle of 100° with the shaft; it is also directed backwards to an angle of 20° . The cartilage of the head extends over the front and upper surface of the neck. In the latter place it is covered with dense connective tissue, and is grooved to receive the posterior margin of the acetabulum with its fold of cotyloid ring and capsule. The capsule is redundant and much thickened posteriorly. There is an abnormally long ligamentum teres present. Its femoral attachment is normal, the acetabular end is pointed and its connection is obscure, seemingly blended in the connective tissue near the cotyloid notch. The acetabulum is shallow, of triangular shape, with base posterior. The superior and inferior margins conform to the shallow curve of the depression, noticeably so in front, where normally the rim is so prominent. The posterior margin is a thick fold of capsule and cotyloid ring. The bottom of the depression presents no cartilaginous surface whatsoever; cartilage is present, but it is covered by connective tissue and fat.

The anatomy of congenital dislocation, as described in the few cases reported, is not of satisfying completeness. The following is a short summary of the principal anatomical points mentioned in the reports I was able to discover:

LOCKWOOD (1887): Double posterior dislocation. Femoral heads irregular, acetabula deep with cartilaginous margins, ligamentum teres exceedingly long.

PHELPS (1891): Upward and forward dislocation. Acetabula small, undeveloped, angular in shape, containing remains of ligamentum teres.

BRADFORD (1894): Single case, which died after open operation. By no form of traction was it possible to bring the head of the femur down to the acetabulum, even after all the muscles had been removed. Reduction could only be accomplished by abduction and rotation. The obstacle was clearly the anterior and strongest fibers of the capsule.

BRADFORD (1898): Double case. Open operation on one side, manipulative reduction on the other. In the manipulated side the cotyloid ligament was between the head and the acetabulum. The side upon which open operation was done showed reposition.

M. BILHAUT (1895): Double case. Capsules relatively large, nor-

mal shape. Heads of femora sensibly flattened before and behind. Ligamentum teres present with normal attachment, but thin, long and vermiform.

ADAMS (1895): Six cases from the London Museum. These agreed in the following points: Acetabula represented by triangular flattened depressions, heads of femora irregularly flattened. In some cases the femoral neck showed changed directions, this varying greatly in degree. Capsule dilated, elongated and greatly thickened.

OCHSNER (1902): Double case, died three years after operation. Had return of normal function to both joints. Acetabula almost as deep as normal, head irregular in shape. What appears to be remains of ligamentum teres present.

WILSON and RUGH (1904): Double case. Heads of femora slightly flattened. Acetabula flattened. Ligamentum teres occupies greater part of the acetabulum, thick in the middle, expanding at each end, seems large enough to prevent reposition.

These cases with my own, represent anatomical data on at least twenty-two congenital hips. We are enabled to form an idea from the observation of these cases as to the obstacles that must be overcome in the reduction and retention of this dislocation. It is to be regretted that the anatomy of many of these cases has not been more fully described.

Sherman has stated that relaxation results from imperfections in the size and shape of the acetabulum, both relatively and absolutely to the femoral head. Bradford has shown that the anterior bands of the capsule are strong enough to prevent reduction except by flexion, abduction and rotation of the limb. He has also pointed out the disadvantages that follow the shortening of the pelvitrochanteric muscles necessary to the "frog position." Lorenz has laid special stress on the danger of relaxation that is incurred in bringing the leg down from the "primarstellung" by force. He insists on the importance of returning the leg to the primary position in order to offset the danger. Little attention has been paid to the importance of the ilio-femoral ligament, both as an obstacle to reduction by any other method than the Lorenz procedure, as well as to the part it plays in the relaxation of the reduced hip. Considerable importance has been attributed to the twist of the femoral neck and to the folding in of the joint capsule before the head.

From an anatomical standpoint the obstacles to be overcome in these cases may be summarized as follows:

An acetabular cavity not of normal development.

A femoral head that is more or less irregular in shape.

A changed direction in the neck of the femur.

An adductor group of muscles too short before operation, and after operation injured both as to muscular elements and nerve supply.

All the posterior muscles with the fascia lata and the ilio-tibial band much shortened.

A much shortened group of pelvitrochanteric muscles.

An ilio-femoral band abnormally short and strong. On this last element I wish to place especial emphasis.

NOTE.—My thanks are due to Dr. Robert Terry, professor of anatomy in Washington University, for the valuable assistance he has rendered in this study.

LITERATURE.

1. Lockwood: Transactions London Pathological Society, vol. xxxviii, p. 303.
2. Phelps: Transactions Amer. Orth. Association, vol. iv, p. 133.
3. Bradford: Transact. Amer. Ortho. Association, vol. vii, p. 92.
4. Bradford: Transact. Amer. Ortho. Association, vol. xi, p. 429.
5. Bradford: Transact. Amer. Ortho. Association, vol. xiv, p. 214.
6. Bradford: Transact. Amer. Ortho. Association, vol. xv, p. 269.
7. Bilhaut: Trans. Amer. Ortho. Association, vol. viii, p. 269.
8. Adams: Trans. American Ortho. Association, vol. viii, p. 305.
9. Ochsner: Annals of Surgery, vol. xxxvi, No. 2.
10. Wilson and Rugh: Amer. J'l. Ortho. Surgery, vol. i, p. 251.
11. Sherman: Trans. Amer. Orth. Association, vol. xii, p. 133.
12. Lorenz: Heilung der Ang. Huftgelenks Verrenkung, Leipzig und Wien, 1900.
13. Lorenz: American Medicine, June 19, 1904.
14. Lorenz: Trans. Amer. Ortho. Association, vol. ix, p. 254.
15. Taylor, H. L.: Trans. American Ortho. Association, vol. x, p. 167.
16. Wolf, Julius: Zeitschrift f. Ortho. Chir., bd. ii, hft. 1.
17. Elliott: Trans. Amer. Orth. Association, vol. vii, p. 282.
18. Whitman: Trans. Amer. Orth. Association, vol. xiv, p. 269.
19. Vogel: Zeitschrift f. Orth. Chir., bd. xiv, hft. 1.

WILLIAM HARVEY AND OUR DEBT TO HIM.*

By E. P. LYON, M. D., St. Louis.

In order that we may appreciate at its proper value a great discovery like that of the circulation of the blood, it is necessary that we put ourselves as nearly as possible into the attitude of mind of men who lived before or at the time the discovery was made. As we look around us tonight in this brilliantly lighted amphitheater, we accept without even a thought the wonder of the electric light. What do you suppose would be the exclamations of our great-grandfathers if they were suddenly brought here? So, as medical students, you have studied the course of the blood through the body, have learned of its ceaseless motion away from the heart, out through the arteries, back through the veins—in truth, the circulation. You have accepted without special thought this fundamental fact in physiology, and have built practically the whole structure of your medical knowledge upon it. To accept the fact has been easy. It seems to you that no idea could be more simple. Can you, with equal ease, put yourself in a condition where the foundation

*One of a series of historical lectures delivered before the students of the St. Louis University Medical School (Marion-Sims-Beaumont) by members of the faculty.

stone of your work—the fact of the circulation—was unknown, undreamed of? I fear it will be difficult.

Suppose, however, that you, like Mark Twain's Connecticut Yankee, can be projected backward in time just three hundred years. It is 1605. James I is on the throne of England, having recently succeeded Queen Elizabeth. Shakespeare is in the height of his power, and has just finished his incomparable tragedy of King Lear. Two years must still go by before the settlement of Jamestown, and fifteen before the pilgrim fathers will land at Plymouth Rock. Sixty years have flown since De Soto discovered the Mississippi, but nearly eighty more must pass before La Salle, floating down the Illinois and Mississippi, will be the first white man to look upon the site of St. Louis. Therefore, if you are studying medicine, it is not in this untrodden wilderness. Let it be in London, where already for many years the College of Physicians has been a growing power.

I cannot stop to describe the methods of treatment with which you are being made acquainted, ranging as they do from bloodletting to incantations. Therapeutics is no "snap course," for single medicines sometimes contain as many as fifty ingredients, and the pharmacopœa recognizes everything on sea or land, from crab's eyes to viper skins. Let us ask, rather, what is the teaching of anatomy in these days, for physiology is not yet a distinct science.

Queen Elizabeth, in 1565, had granted the College of Physicians the right to take yearly the bodies of four malefactors, executed for felony, for dissection. Later the charter of James I increased the number of bodies to six. Why the number should have been so small, especially at a time when capital punishment was so much more common than now, seems strange at first. It becomes more clear when we think that you as students would not in all probability have touched the cadaver at any time in your medical study, for "anatomy was taught practically in a series of demonstrations upon the body."

The College of Physicians at the time of which we speak had an endowed course of lectures, founded some years before by Lord Lumley and Dr. Caldwell. In addition to certain prescribed teaching of surgery, the lecturer was directed by the founders, at the end of winter, "to dissect openly in the reading place all the body of man, especially the inward parts, for five days together, as well before as after dinner, if the bodies may last so long without annoy." This provision, again, sounds strange to our ears, but when we remember that they had no means of preserving the body, the custom of having two lectures a day, and of finishing the anatomical work in from three to five days becomes perfectly clear to us. The Surgeons' Company also held similar "Public Anatomies."

Now, let us imagine that in the year 1605 we have gathered to hear a lecture on anatomy. We are formally arranged in the order of rank,

and dressed in proper cap and gown, as becomes the station of each. Promptly on the hour appears a procession of functionaries, each in his livery or gown: First, the clerk; then the doctor; then the "Masters of the Court." All having been seated with ceremony, the clerk hands the doctor the wand with which he is to point out the various structures of the body; and two demonstrators, scalpel in hand, having meanwhile taken position by the body, the lecturer begins. For three-quarters of an hour he speaks in Latin, the official and international language of the day; then, for one quarter of an hour, he explains in English for the benefit of such of us as understand not the ancient tongue. Most likely the lecturer sits at the table and only touches the structures with his wand, and explains them as they are laid bare by the assistants. At any rate, one hundred years before this time it would have been far beneath the dignity of a great doctor to have dissected with his own hands. Barbers were called upon for such menial work. Now, through the influence of Vesalius, a new era in anatomy has well begun; and perhaps we may see the lecturer himself take scalpel in hand and dissect out some difficult portion.

The subject of this day's lecture is the Thorax. The demonstrator displays the heart and lungs. Let us mark well what the lecturer says, for in the contrast we shall learn the greatness of Harvey. Listen, then, to an imaginary lecture on the heart and blood, in the year 1605:

"The heart, gentlemen, consists of two chief cavities, the right ventricle and the left ventricle. All the vessels attached to the right side of the heart are called veins. The vein which goes to the lungs is very large, strong, and in structure like an artery, hence it is called the artery-like vein [now, pulmonary artery]. The veins carry blood from the heart to all parts of the body for their nourishment. The blood receives from the stomach and intestines supplies of food, and is further elaborated in the liver. This blood thus prepared and full of 'natural spirits,' but crude and lacking 'vital spirits,' is sucked into the right ventricle during its diastole and immediately drawn back again into all the organs during the systole. Thus the diastole is the time of activity and the systole is the rest period of the heart. The artery-like vein [pulmonary artery] carries blood to the lungs for their nourishment. In the veins are many little doors or valves, as Fabricius has well shown. These again are wonderful structures. They are always directed towards the heart, and were 'formed by nature,' as Fabricius says, 'in order that they may, to a certain extent, delay the blood and so prevent the whole of it flowing at once [from the heart out through the veins], like a flood, either to the feet or to the hands and fingers, and becoming collected there.'

"The left ventricle likewise gives origin to a series of tubes, and these are the arteries. The arteries are much thicker than the veins; all except the one great artery which goes to the lungs from the left ventricle and is very thin and in structure like a vein. Hence we call it the vein-like artery [now pulmonary vein.] The arteries, we believe with Galen, are filled with blood, and not with air or spirits as Erasistratus of the

ancient Greeks taught. This blood in the arteries and in the left ventricle is different from that in the right ventricle, being bright crimson and full of 'vital spirits.' These wonderful spirits are concocted in the left ventricle by its heat (from air from the lungs), and there mixed with the blood. Thus the pulmonary vein has for its use to bring air to the blood for the manufacture of vital spirits. At the union of the auricle and ventricle, also where the aorta joins the ventricle we find valves which prevent the vital spirits from going back to the lungs.

"The blood on the left side of the heart, like that on the right side, is in a ceaseless state of ebb and flow. During diastole it is sucked into the left ventricle; but immediately, the arteries by active expansion or diastole suck it back and fill themselves like a bellows, and then we feel the pulse. Thus the systole of the heart corresponds in time but not in any other way to the diastole of the arteries. The arteries carry vital spirits to the tissues, by which the latter are kept alive. Also the arteries absorb vital spirits or air through the skin and in their systole squeeze out vapors through the same. And especially they carry blood to the brain where are generated the rarest and highest essence, 'animal spirits,' which flowing out into the nerves and unmixed with blood, supplies force to the muscles and causes them to move. Thus we have three kinds of spirits; first, the 'natural spirits,' contained in the blood of the right ventricle and veins and serving the lower orders of nutrition; second, the 'vital spirits,' hot and ruddy and subtile, formed in that furnace of the body, the left ventricle, from the air drawn into it through the vein-like artery and serving the higher purposes of nutrition; and finally, the 'animal spirits' which run in the nerves and arouse activity and motion [so that we to this day say of the young, that they are full of animal spirits.]"

"Nor are we yet through with these wonderful matters, for it surely is necessary that new crude blood should reach the left side of the heart from the right for the renewal of the supply and that new vital spirits may be engendered. Therefore the blood sweats through the septum between the right and left ventricle, finding its way by innumerable pores too small for the eye to see. So Galen says and so we believe. Here endeth the lecture."

The foregoing is what we might have heard concerning the motions of the blood three hundred years ago in the city of London. Starting with the error that the veins carry blood from the heart, we find built up such a mass of wrong observation, incorrect inference and wild imagination, that to us it seems but a nonsense tale. Yet this as simply as I can state it was the belief concerning the heart from the second century, when Galen lived, to the seventeenth, so great during all the centuries between was the authority of Galen and so little the impulse to original investigation. Be sure to gather in the fundamental ideas of the old teaching; the veins carry blood out from the heart; the arteries carry a different kind of blood; the pulse is an active process which sucks blood out from the heart; the heart is a sort of gland that concocts spirits and produces heat; the active period of the heart is its diastole; the blood passes from right to left ventricle through the septum;

the pulmonary artery is to nourish the lungs; the pulmonary vein is to carry air to the left ventricle. Gather all this in and imagine yourselves as medical students, taking it down in your notes as law and gospel. Does it not seem impossible and absurd?

Now we are on the threshold of a new era; and here, perhaps, in this very audience which in the year 1605 has listened to the discourse on the heart is a young doctor whom we will do well to observe. He is a small man, quick in his movements, vivacious and friendly, yet easily stirred to anger. His little black eyes snap even now and his round face expresses disapproval, with difficulty restrained, as he listens to the bold assumptions of the lecturer and his servile adherence to authority. We see a smile of incredulity at such wild inferences as the sweating of the blood through the septum of the ventricle. Already we imagine he has begun to doubt the old theories. Already, in the abundant leisure given to most young practitioners—given, it would seem, that they might devote their best years to original investigation, but given in vain in a majority of cases—already, probably, he has begun the experiments which shall inaugurate a new era in medicine and establish the new science of physiology. The young doctor of seven and twenty, keen, studious, courteous, traveled, man of the world, linguist, graduate of two universities, familiar with all the medical lore of his time—mark him well! He it is who shall bring order out of a chaos of observations, interpretations, guesses and philosophic dogmas dating, some of them, from the time of Homer; he shall sluice out the grains of golden fact from among the sands of error; he shall add essential new facts from the mine of his own industry and perspicuity; and with a fine fire of scientific imagination smelt them all into one philosophic whole, the idea of the circulation of the blood, and make of it a jewel which shall adorn his fame as long as man exists and continues to study man. This young doctor is William Harvey.

He was born at Folkestone on the Strait of Dover, in the year 1578. His father is described as a "yeoman" or freeholder. He was well-to-do and influential, being mayor of Folkestone in the year 1600—"a man of more than ordinary intelligence and judgement." Of the mother little is known except a record of virtues on a brass tablet still extant in the Folkestone church. We may imagine, as Willis does, that she was the first teacher of her illustrious first-born son. At ten years of age he was sent to the grammar school at Canterbury, where the chief instruction, then as now, was in Latin and Greek. At sixteen he was enrolled at the University of Cambridge, and having decided already upon medicine as his profession, was drilled in the classics, physics and logic as the best preparation for medical studies. In 1597, when he was nineteen, Harvey graduated from Cambridge as a Bachelor of Arts, and was ready for professional study. At that time the universities of Northern Italy were famous as centers of learning. And to that of Padua, the

university town of the Republic of Venice, renowned for its anatomical school, young Harvey betook himself. Here sixty years previously Vesalius had redeemed anatomy from the thralldom of authority and had elevated the teaching of it from a mere reading of what Galen wrote to an appeal to what Nature says and the scalpel reveals. Here for a year or two Realdus Columbus had followed Vesalius as anatomy lecturer; and he, Professor Huxley believes, is entitled to credit as the discoverer of the pulmonary or lesser circulation, though many others consider him a mere plagiarist from Servetus. Here Fallopius, from whom the Fallopian tubes were named, was later the professor of anatomy; and here at the time of Harvey's matriculation the famous Fabricius filled the chair. Fabricius, as describer and rediscoverer of the valves of the veins, was honored and celebrated, although, as has been well said, he "could observe and he could describe, but he wanted the combining intellect that infers, the imagination that leads to new ideas—to discovery." It was Fabricius most likely who chiefly drew Harvey to Padua, and from that master the young Englishman received much information and inspiration, but not, we may be sure, the suggestion of the circulation, for Fabricius no where in his writings gives even a hint of such an idea. On the contrary, he carefully follows the conventional teaching, and distorts and perverts the functions of the valves to conform to Galen's views.

Of Harvey's life at Padua we know little. He was one of the leaders of the English student body there, and a tablet commemorative of his student days has recently been discovered. He took his degree of Doctor of Physic there with high honors in the year 1602, his diploma reciting that "he had conducted himself wonderfully well in the examination, and had shown such skill, memory and learning that he had far surpassed even the great hope which his examiners had formed for him."

Harvey immediately returned to England, and obtained his "M. D." at Cambridge the same year. Soon after he located in London, where he was not without influence, as several of his brothers were prosperous merchants, and one held a post at the court of James I.

And now in the year 1605 we have imagined him attending the lecture on anatomy, and already, as Power says, "probably occupied in making those observations on the heart and blood vessels which have since rendered his name famous." Indeed, his lectures "show an intimate acquaintance with the anatomy of more than sixty kinds of animals," besides the human body. We must pass along with just a mention of various records which show how Harvey was increasing in influence and the esteem of his contemporaries. For example, in 1607 he was elected Fellow of the College of Physicians; in 1609 he became Physician of St. Bartholomew's Hospital.

We come now to the month of April in the year 1616, when Harvey,

having been appointed Lumleian Lecturer in the College of Physicians, first gave his anatomical lecture. Again, no doubt, the same ceremonious opening was observed that we found eleven years before. Again was the wand (still preserved at the College of Physicians) placed in the lecturer's hand. But how different now is the teaching of the functions of the heart and blood vessels! By a wealth of experiments, a wide reference to comparative anatomy, a comprehensive knowledge of clinical and pathological conditions, and with a logic simple, straight and incontrovertible, he drives home to his astonished hearers the story of the circulation. As is shown by his notes on those lectures, discovered only a few years ago, he was already clear on the essential points of this discovery. These are his words, translated from the jargon of Latin and English in which the notes are written: "It is plain from the structure of the heart that the blood is passed continuously through the lungs to the aorta as by the two clacks [or valves] of a water bellows to raise water."

"It is shown by the application of a ligature that the passage of the blood is from the arteries into the veins."

"Whence it follows that the movement of the blood is constantly in a circle, and is brought about by the beat of the heart."

Although it is plain from these notes that the central idea of the circulation was already clear in Harvey's mind, he continued to experiment and discuss the matter in his lectures for twelve years before he published his "Anatomical Disquisition on the Motion of the Heart and Blood,"* in which his discovery was made known to the world. Written in Latin, and published at Frankfort, this little treatise of seventy-five pages contains a matured account of the circulation of the blood, developed in such a masterly fashion, embellished with such wealth of fact, and presented with such logic and argument that Huxley pronounced it a "typical example of sound scientific method, and of clear and concise statement." And another says, "It constitutes the earliest record we possess of a really scientific investigation in the domain of biology based on systematic observations and experiment." It is the "precursor and prototype of the modern monograph."

Time will not permit of extensive excerpts from Harvey's book. It is available in the excellent translation of Willis and should be read by every physician and every scientist. I confess myself more than repaid for the time spent on this lecture, in that it led me to read Harvey's masterly work.

Let us, however, in the few minutes at our disposal, study the methods of Harvey and the results that followed the publication of his book.

In an introduction of a few pages he reviews the theories previously maintained and some of which we have described. "These various opin-

* The title was, "Exercitatio Anatomica de Motu Cordis et Sanguinis."

ions," he says, "are seen to be so incongruous and mutually subversive that every one of them is not unjustly brought under suspicion."

After giving an experiment of Galen which was supposed to prove that the diastole of the arteries is an active process, and that they are filled by suction of their own, and criticising the method of the experiment, he continues: "But the contrary is obvious in arteriotomy and in wounds, for the blood spurting from the arteries escapes with force, now farther, now not so far, alternately, or in jets; and *the jet always takes place with the diastole of the artery*, never with the systole, by which it clearly appears that the artery is dilated by the impulse of the blood." How stupid were our ancestors, we are tempted to say, that they could not recognize facts so obvious and so closely related. Let us rather praise the genius of Harvey that could see where others were blind; for the future Harveys and their followers will wonder, no doubt, that we of the twentieth century were unable to shake off the shackles that bind us to many accepted views, so as to see things which are open as noonday.

Again, concerning pores in the septum of the ventricle Harvey says: "But, in faith, no such pores can be demonstrated, neither in fact do any such exist. For the septum of the heart is of a denser and more compact structure than any portion of the body, except the bones and sinews. *But even supposing that there were foramina or pores in this situation, how could one of the ventricles extract anything from the other—the left, e. g., obtain blood from the right—when we see that both ventricles contract and dilate simultaneously?*" You see he has observed correctly and then thought it all out; his knowledge of physics serves him well; and he hits the nail on the head every time.

Having disposed of the old views by arguments and appeals to well-known facts, Harvey proceeds to prove his new and startling proposition. Let us briefly inquire into his methods and arguments.

First, there is the method of vivisection. By the most thorough and careful work on many classes of animals, from dogs to snails and lobsters, Harvey gives us the first correct picture of the action of the heart. He shows that it becomes erect and hard during its systole, and that the systole, therefore, corresponds to the contraction of ordinary muscle and must be the period of the heart's activity—a statement in direct opposition to old views. He states that the heart becomes smaller and paler during the systole, *i. e.*, blood is forced out of it; and "no one," he adds, "need remain in doubt of the fact, for if the ventricle be pierced the blood will be seen to be forcibly projected outwards upon each motion or pulsation when the heart is tense." Every time you see the test of experiment.

He shows further that at the moment when the heart contracts the arteries dilate and the pulse is felt; when the left ventricle ceases to contract, the pulse ceases; when an artery is dilated the jet of blood

corresponds to the systole of the ventricle ; when the systole of the ventricle becomes weak, the pulse is weak ; when the right ventricle contracts there is a pulse in the pulmonary artery. He calls upon pathology to speak in his favor as when (in another publication*) he adduces a post-mortem which revealed the descending aorta "converted into a bony tube." Yet during life the pulse had been felt beyond in the legs and feet, an impossibility if the pulse were an active dilation propagated along the arteries. The pulse he clearly demonstrates by many experiments is due to the impulse of the blood thrown violently from the left ventricle. And again by the power of observed fact he has bowled over an ancient error—that the pulse was independent of the heart. If one admits the passive nature of the pulse and its dependence on the heart, the circulation cannot be doubted.

Next he studies the motion of the auricles, and states that the right and left auricles contract simultaneously, followed by the right and left ventricles contracting also simultaneously ; not four motions, distinct in time and place, as had been previously claimed.

Many arguments and experiments are brought forward to prove the passage of the blood from the veins to the arteries through the pulmonary vessels. In animals without lungs he notes that the blood is passed directly from vein to artery by the heart. It must be the same in higher animals, and the only path is through the lungs. The arrangement of valves favors this idea and renders it the only possible one. The pulse in the pulmonary artery, and the lack of it in the pulmonary vein, show that the former is really an artery and the latter really a vein. And the pulse in the former shows that blood is thrown into it by the right ventricle.

It is often stated that Harvey did not use the method of artificial injection to prove his theory. It is true he makes no mention of such experiments in his first book on the subject. But I find in a letter of his, written some years later to Paul Slegel of Hamburg, that he actually did such experiments. He states that if the pulmonary artery be tied and water forcibly injected into the right heart through a tube tied in the vena cava, not a drop escapes from a hole previously made in the left ventricle, though the right auricle and ventricle swell enormously. On the contrary, if the injection be made into the pulmonary artery, water gushes forth from the left ventricle in a great stream that leaves no doubt that a free passage exists through the lungs.

Next comes a chapter which has been praised by every critic, wherein Harvey introduces the quantitative method, universally acknowledged now-a-days as the highest type of observational inquiry. He measures as nearly as possible the amount of blood sent from the right to the left side of the heart at each beat, and then argues that if you admit only a small fraction of his estimate, in the course of an hour the quantity is

*Second Disquisition to John Riolan.

enormous, and there must be some way for it to return, and it must be constantly finding its way from the arteries to the veins. "I began to think," to use his oft quoted words, "whether there might be motion, as it were, in a circle." And he argues that the path of return must be by pores or minute anastomoses in all parts of the body. Remember that this was before the microscope was invented and the capillaries discovered; that no one before had considered that any considerable quantity of blood passed from the veins to the arteries or *vice versa*, and you begin to get a faint conception of the revolution which Harvey's publication must have wrought in the fixed ideas of his age.

Some of Harvey's methods of estimating the amount of blood passing through the arteries are extremely ingenious. For example, bind the arm with a moderately tight bandage, the veins are closed but the arteries open, and the arm becomes gorged with blood. Now, cool the arm in snow and then remove the bandage. You can feel the cool blood pouring instantly back to the heart, showing how rapid is the exchange.

The proposition of the return or systemic circulation, he proceeds to strengthen by many experiments and arguments. The facts of tight and medium ligatures on the limbs—facts more familiar in that blood-letting era than now—are used in a masterly way, which we cannot go into for lack of time. Furthermore, the valves of the veins to which Harvey's old master, Fabricius, had given so much attention, are, by the former, made an irrefutable argument for his theory.

Some of Harvey's experiments seem at first sight absolutely ludicrous to us, as, when he commands us to draw two similar cups of blood, one from an artery, the other from a vein. Let these stand, he says, and they behave exactly alike. Both coagulate and press out serum. The arterial blood does not shrink as it would if some kind of "spirits" escaped from it. Moreover, he commands, if you think arterial blood contains spirits, draw it under oil or water. You will not see any bubbles or spirits escape. Such experiments, trivial as they seem, were necessary to combat the idea that arterial blood was totally different from venous blood, being subtle, attenuated and spiritous—a kind of foam—and, therefore, that no commingling or circulation was possible. By such experiments, moreover, Harvey unwittingly undermined the whole doctrine of spirits and started the downfall of vitalism.

Finally, it is easy to see from this book and from Harvey's other writings on the subject, how many previously inexplicable phenomena had become as clear to Harvey as they are now to us, and by the same powerful illumination—the knowledge of the circulation. He saw and mentions numerous applications of his discovery to pathology and medicine—to name but one, the spread of contagion from a seat of injury—but he reserves the discussion of most of these for a future work on "Medical Observation," which unfortunately was destined never to be

published, the manuscript being destroyed at the sacking of Harvey's house during the war between Parliament and Charles I.

The publication of Harvey's work aroused a storm of protest and denunciation. He was called names in comparison with which our term of "crank" is mild as milk. His practice fell away, and many of his fellow-physicians did their best to overthrow him. It is stated that no doctor over forty years of age at that time ever accepted Harvey's theory. Then, as now, it was the young men who accepted the new ideas. Then, as now, was demonstrated that death is the highest agent of progress, removing from the field the old and unbendable, the conservative and slothful, and placing at the plow the young, adaptable, progressive and active.

The conflict that followed the publication of the "circulation" was much like that which came after Darwin's "Origin of Species." And Harvey found his Huxley in the great Descartes. Others also took up the fight, and honor soon followed where opprobrium had been meted out. In fact, before Harvey's death he had the satisfaction of seeing his ideas adopted in most of the universities of Europe, a recognition which comes all too seldom during the life-time of great men.

In 1661, four years after Harvey's death, Malpighi (with the newly-invented compound microscope) saw the capillaries and the passage of blood from arteries to veins. Thus the last support of Harvey's opponents was knocked away.

So far as I have been able to find out, no one in Harvey's time, either of his friends or enemies, denied him the credit of originality in the theory of circulation. In later times, however, just as in Darwin's case, all sorts of efforts have been made to claim the honors for others. In Spain you will find a monument to Servetus, describing him as the discoverer of the circulation. In Italy a memorial inscription as easily and generously gives the credit to Cæsalpinus. Nor are these the only ones who have been awakened from their long sleep to receive a deathless honor.

I have not examined the original writing of these scientists, but so far as I can gather from partial translations and from the criticism of those who have exhaustively studied the matter, not one of all those for whom claims are made had any idea of "a motion in a circle," as Harvey so simply and perfectly expresses it. They all spoke on the motion of the blood; but that conception is as old as Homer. Some of them even used the word "circulation;" but it was in the sense of mixture, as a swarm of bees circulates or the air of a room circulates. That they never arrived at the correct conception is proven by the always repeated comparison of the motion of the blood to the ebb and flow of the tide, and the constant claim of an active diastole of the arteries. Some of them thought the communication from right to left ventricle to be through the lungs; but they had no conception of the quantity of blood

that passed. A few drops of venous blood mixed with vital spirits were supposed to wonderfully expand, as it were, into foam, as they became filled with vital spirits. Hence only a little blood need go from veins to arteries. Consequently no one saw the necessity of a means of getting it back to the venous system again. And while some believed that blood might sometimes percolate from arteries to veins (indeed the notion dates back to Galen), yet it was as likely to pass in the opposite direction. No one hit the brilliant idea of a continual flow in one direction. Before William Harvey no one conceived the *circulation*. This glorious child of the scientific imagination is his, and the credit of adequate demonstration is his.

Of Harvey's life after the publication of his first and greatest work I need say little. He was physician to Charles I.; and we wish that instead of following the king in his wars and accompanying noblemen on their foreign tours, Harvey had continued his scientific work under favorable conditions. Still he was never idle nor did he enter the intense political struggle going on in England. He was physician to the king, not his partizan. Even on his journeys, and during his long absence from London with Charles; and even in the crises of the civil war he continued the accumulation of material for his last work, that on generation.

After the defeat of the king in 1646 Harvey returned to London and lived thereafter a quiet life. But, though he was then nearly seventy, his industry and intellect were undiminished. His second great book, "On the Generation of Animals,"* was published in 1651. Into this work we must not go, more than to say that he maintains strongly that no life arises spontaneously, a doctrine mightily combatted for many years, and only in the last century solidly established and made the basis of the science of bacteriology.

In 1654 he was elected president of the College of Physicians, but refused on account of age and poor health. He continued to give his lectures, however, until he was very old. He contributed liberally, moreover, to the college, erecting a building, giving books and funds to the library and endowing the Harvey Lectureship, which is continued to this day.

He died in 1657, in his eightieth year. His remains were taken to Hempstead, in Essex, and placed in a vault belonging to his brother. In 1883, this vault having fallen into decay, they were reinterred in a marble sarcophagus, with ceremonies in which the entire College of Physicians took part.

Of Harvey's character, I cannot do better than quote again from Professor Huxley: "There have been great men whose personality one would gladly forget; brilliant capacities besmirched with the stain of inordinate ambition, or vanity, or avarice; or soiled by worse vices; or

* De Generatione Animalium; London, 1651.

men of one idea, unable to look beyond the circle of their own pursuits. But no such flaw as any of these defaces the fair fame of William Harvey." For my own part, in reading his works I have been struck again and again with his generosity and courtesy to opponents. In his deed of gift to the College of Physicians he exhorts the Fellows, "For the honor of the profession to continue in mutual love and affection among themselves"—a sermon which he constantly exemplified in his own life.

Let me dwell for a moment on certain phases of Harvey's methods of work as a scientist which have particularly impressed me. In the first place, we are struck with his ability to observe correctly. Probably there is no series of motions more difficult of correct observation than the beat of the heart. Throughout the thousands of years that men had slaughtered animals, and augurs had prophesied from freshly exposed viscera, and physicians had dissected, sometimes even the living man, not one had correctly described the motions of the heart. William Harvey did.

Secondly, nothing could drive him from the evidence of his senses; not the authority of the ancients, nor the logic of famous contemporaries, nor the ridicule of the vulgar. In his day, much more than now, dialectics was the method of science. Men attempted to reason out the laws of the universe from preconceived notions. Harvey also argues his case in a masterly manner, but says: "Now this, my conclusion, is true and necessary, if my premises be true; but that these are either true or false, our senses must inform us, not our reason—ocular inspection, not any process of the mind." The contrast between Harvey's work, based on observation, and that of his opponents, based chiefly on authority and reason, shows better than anything else how much Harvey was ahead of his time.

Let me quote again to show how he had risen above the slavery to authority which overwhelmed the medical profession of his day; "Whoever, therefore, sets himself in opposition to the circulation, because, if it be acknowledged, he cannot account for a variety of medical problems * * * ; or who will not see that the precepts he has received from his teachers are false; or who thinks it unseemly to give up accredited opinions; or who regards it as in some sort criminal to call in question doctrines that have descended through a long succession of ages, and carry the authority of the ancients;—to all of these I reply: that the facts cognizable by the senses wait upon no opinions, and that the works of nature bow to no antiquity; for, indeed, there is nothing either more ancient or of higher authority than nature."

A third thing which naturally strikes with great force one trained under that masterly worker on the fundamental questions of life phenomena, Professor Jacques Loeb, is Harvey's constant use of the lower forms of animal life. There one ever finds the problems simpler, the

perturbations and disturbances less, the answer easier of attainment. Why one should choose the shrimp or insect or frog instead of man as an object of study creates ridicule to-day, as it did in Harvey's time, and cannot be answered better, perhaps, than in his pious words: "The great and Almighty Father is sometimes more visible in His lesser and, to the eye, least considerable works." In another place he says his discovery would have been made long before if men had given to comparative anatomy the same attention and zeal as to human anatomy.

Fourthly, let me mention Harvey's consistent use of the method of vivisection, a method not invented by him, but one in which his surgical skill and his trained ability as an observer made him pre-eminent. To my mind it cannot be successfully controverted that vivisection is the fundamental method on which medical progress depends. And it is a matter discreditable to the race that a mawkish sentimentality in command of the law-making power would to-day in all probability prevent in England such a discovery as that which Harvey made.

I promised to deal with the debt of Medicine to Harvey's discovery. But, really, there is no need. He who runs may read. The circulation is the central column that supports the whole temple of physiology. Without it no understanding of the preparation and distribution of food, or the removal of waste, or the interaction and dependence of organs, or the wonderful subject of internal secretion, would be at all possible. Modern astronomy rests on the Copernican theory of the solar system. Not less firmly is physiology based on the circulation of the blood.

In pathology, think only of two subjects—metastases and inflammation—and attempt to explain them without the aid of the circulation! Or consider current doctrines of infection, intoxications, immunity! Or attempt diagnosis or treatment, or prognosis! The circulation usually, if not always, is the pole toward which your guiding compass turns. I quote the words of T. Lauder Brunton: "How very minute is the gemmule from which has sprung everything that is definite in medicine, for this gemmule is no other than the idea which Harvey records in these simple words: 'I began to think whether there might not be motion as it were, in a circle.'"

More important, even, than all this constructive work is, perhaps, the influence of Harvey's discovery in effecting the downfall of the doctrine of spirits. Previous to him physiology, more than any other science, was dominated by dogma. But after Harvey's work and the advent of the new chemistry a little later, more rational views of life processes in health and disease became possible; and progress inevitably became faster as the grinding brake of vitalism was loosened.

Not only has Harvey's discovery been the inspiration of scientists and historians, but also of poets as well. And I cannot do better than close with Cowley's ode:

"Thus Harvey sought for truth in truth's own book—
 Creation—which by God himself was writ;
 And wisely thought 'twas fit
 Not to read comments only upon it,
 But on th' original itself to look.
 Methinks in Art's great circle others stand
 Lock'd up together hand in hand:
 Everyone leads as he is led,
 The same bare path they tread,
 A dance like that of Fairies, a fantastic round,
 With neither change of motion nor of ground.
 Had Harvey to this road confined his wit,
 His noble circle of the blood had been untrodded yet."

REFERENCES.

Willis: *The Works of William Harvey*, London, 1847.

Power: *William Harvey*; in *Masters of Medicine* series, London, 1897.

Foster: *Lectures on the History of Physiology*, Cambridge, 1901.

A useful list of further references follows the article on Harvey in the *Encyclopedia Britannica*. A large number of magazine articles on various phases of Harvey's work is available through *Poole's Index*. For the most part these articles seem to be founded on Willis' book. Professor Huxley, however, in the *Fortnightly*, vol. 29, p. 164, treats the subject with his usual lucidity and originality. See also Huxley, *Proceed. Roy. inst. Gr. Brit.*, 1878, vol. viii, p. 485.

EDITORIAL COMMENT.

THE MEDICAL SOCIETY.

The medical society in a large community is an important element in the medical life of that community. Its influence for good has been insisted upon by all medical writers who have given the subject any attention. Notably Osler has again and again emphasized its value both to the individual and towards strengthening the position which medicine occupies in a given community. It is apparent that a society, especially under the new conditions set forth by the American Medical Association, serves the interest of medicine in many other ways than purely medically. In other words, there has come about a sharp distinction between the society as a representative body having the interests of medicine at stake in what may be called its civic side, and the society as a body of men whose aim it is to advance medicine as a science. It is almost impossible to conceive of a society as large as this one has become, to do both equally well and to serve both ends judiciously.

With the increasing demand for more careful work in medicine, it might be pertinent to inquire how far a local society is capable of meeting and fostering this demand. If the programme of a year's work in the local society be studied, taking this as an average body, it will be found that a surprisingly small number of papers are read which even suggest that there has been a sustained effort towards the investigation of the problem presented or even a broad appreciation of the work done in other places.

The great majority of papers consist of case reports, generally statistical in character, or of the narration of single rare experiences in clinical medicine.

It may be suggested that the character of the paper presented is a measure of the intelligence of the audience before which it is read. Papers of the other sort would be presented if there were a reasonable demand for them; or another explanation might be advanced, namely, that no other papers are read because there are none produced here. Both these assumptions are wrong, and the fact remains that there is an audience prepared to hear the best that can be produced and that there are a sufficient number of men who can produce them. The fault lies rather in the character of the gathering which, in the very nature of things, a society like the local one, or any other local one, brings together.

A local society is cumbersome in its organization, and its activity at any one meeting may be largely used up in the discussion of what, for the lack of a better name, may be termed medical politics. No invidious

meaning attaches to this term. It simply refers to the sum of a medical society's activities not associated with the presentation and the discussion of purely medical subjects. As the society grows in numbers it will become more and more difficult to simplify its organization in such a manner that the business of the practical side of its activity can be side-tracked for the time necessary for its other functions. There is in a city of this size a score or more of men engaged upon research into the biologic side of medicine; there are many others who are working upon the clinical laboratory questions, and for all of these there has been wanting a well-recognized medical audience to serve as critics of their work. In the attempts that have been made to present papers embodying this sort of work before the large general society there has been the discouraging features of small, very small, attendance and the lack of intelligent discussion. A handful of politely bored or mildly interested physicians is, to say the least, not a stimulating audience for any one.

A solution for the present unsatisfactory state of things is a real necessity. It probably lies in the effort to establish small societies of various specialties and a society limited in numbers, where the clinical man with interests not wholly limited to cases as such, and the laboratory worker, meet on the common ground of what may be called the biological side of medicine, that is, of medicine considered as a part of biology.

Such societies are an important feature of medical life in other cities, and have become very active in their influence upon the larger society. Through societies of this sort, and other more special ones, the education of a larger audience is brought about and a taste for a better product is awakened which cannot fail in time to produce the same kind of effect upon the more general society.

It may possibly come about that the local society may find means to limit its business side to special meetings, and that the best of the activities of other societies be presented before it in such a way that it will arouse the interest of a larger audience, at present dormant for lack of stimulation.

THE SYPHILIS-SPIROCHÆTE.

The discovery of Schaudinn, published in the beginning of this year, of the constant presence of a characteristic form of spirochæte in syphilitic lesions, has given rise to an enormous amount of control investigations. The latter, following the path described by the discoverer, are remarkable for the uniformity of their results, a fact which permits us to conclude that the future, if no new views are opened, will only confirm the results obtained. At the same time it is appropriate to discuss the conclusions that can be drawn from a general confirmation of Schaudinn's work, based on investigations already carried out.

As is well known, this work has demonstrated that a peculiar protozoic organism is to be found in every syphilitic lesion of the primary and secondary stage of the disease in man and in the monkey, as well as in the blood and the spleen, and in congenital syphilis in almost all organs. This organism is a spirochæte of very characteristic size and shape and comparatively easily differentiated by these from other members of this group, which in the same and other lesions are known to occur as saprophytes. This point is now a fact and negative reports for different reasons cannot be objections. For causes at present unknown the number of organisms demonstrable is mostly very small, only exceptionally large. As the demonstration is very difficult and tedious, a negative finding ought always to be suspected. The differentiation as yet is only morphologic; it is easily achieved if familiarity with the shape, size and staining qualities of the spirochæte obtains. In spite of contradictory reports this spirochæte has not been found anywhere else; it has never been found in tertiary processes.

This is all we know for the present. Can we draw any conclusions from this knowledge? Some enthusiasts have formed the opinion that the etiology of syphilis is established by this discovery. It would be futile to deny that such a thought lies at the bottom of the tremendous amount of labor devoted to the study of this spirochæte. Nevertheless, the opinion that it is the etiological factor of syphilis has found but few adherents. The general trend of thought is not of hesitation, but of wise precaution. During the past twenty years the constant finding of a microbe in a specific disease has led investigators to associate that microbe with the causation, or better the etiology of the disease. Latterly this association of cause and effect has met with several serious rebukes, the most recent one being the discarding of the hog cholera bacillus, heretofore reigning supreme, and its replacement by an ultramicroscopic virus. The assumption cannot be condemned today that in other diseases also, the etiology of which we have been proud to pronounce fully established, the future will bring changes and alterations or additions; such probabilities, for instance, have been suggested lately for diphtheritic infections. The constant finding of a specific micro-organism in a specific infectious disease can be at the best but suggestive, never a proof. The suggestiveness, however, of this observation is very great. What has been done is only a preliminary step. Methods for experimentation must be invented to prove that the suggestion is right or wrong.

Many difficulties surround the problem. Spirochæte, to which group also belongs the organism of recurring fever, is not a bacterium but a protozoon. As studied in animal diseases, the spirochætæ show a very complicated cycle of development. Of Schaudinn's spirochæte we only know the spirillum stage; of other stages we have but vague and indefinite inklings. Until this is worked out and until the relation of each stage to the pathologic stages caused by it is established, we can make no

progress. At present we have no idea of the relation of the spirochæte to the tissue-elements between and perhaps in which it is found. We can only demonstrate it in the exudates and pressed out tissue-fluids. Above all we have to deal with an organism which, even in its spiral form, offers great difficulties to its recognition. Koch's laws to establish its specificity are far out of reach today—no spirochæte has ever been cultivated. In fact to one familiar with modern methods of biologic research, no feasible way suggests itself. Herein lies the great importance of Schaudinn's discovery, for the difficulties obtaining and the essential importance of the goal to be reached will act as a stimulus to efforts to solve the problem, to find new ways and methods to make accessible to direct interference one of the most serious plagues of mankind.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

A Severe Form of Chronic Spasm of the Colon.—SCHUETZ (*Archiv. fuer Verdauungskrankheiten*, Pt. 4, Vol. XI), reports three unusual cases of contraction of the colon in young women. The attacks were unlike the ordinary spastic condition of the colon in neurasthenic conditions, and similar ones, it seems, have not been reported in the literature. The trouble is characterized by very severe attacks of colic in the course of the colon, and especially in the left half of the abdomen. The colon was often palpable as a hard strand throughout its length and exceedingly sensitive to pressure. In two of the cases there had been recurring attacks for several years, and in one case a diagnosis of appendicitis was made. The appendix, however, was found in a perfectly sound state, in spite of the fact that a hard mass had been palpated in the cæcal region.

The author lays great stress upon the differential diagnosis, showing how readily the cases may be taken for lesions of the intestines, tabes incipiens, colitis and sigmoiditis, etc.

Skiagraphy of the Stomach and Intestines.—HULST (*Physician and Surgeon*, September, 1905) made careful x-ray examinations of the stomach and intestines in a series of cases, and presents in this article the skiagraphs. He lays much stress upon the technique in the use of the x-rays, and shows how greatly the results may vary with slight manipulation, differences in position, etc. His pictures of the normal colon and stomach, semi-distended with milk and bismuth, vary greatly from the descriptions in text-books on anatomy. He thinks that the current conception of the size, shape and position of the normal stomach is bound to be modified in the future. He maintains that the patient should be skiagraphed in standing or sitting positions and that the reclining position gives false results. He recommends, further, that the anticathode should be not less than twenty inches from the plate, that the skiagraph be interpreted according to the laws of projection, that the source of light be centered, that short exposures be taken on account of the peristalsis. In these cases the patients were given meals including large amounts of bismuth. The first picture taken immediately after the meal indicates the position of the stomach; the second picture, taken four to six hours later, determines the relative length of time needed for the stomach to empty itself of the bismuth, and a third picture is taken from ten to twelve hours after the digestion of the meal, to determine the location of the colon. He finds the cæcum more of a receptacle than the stomach, judging by the length of time the bismuth

remains in it. The jejunum, true to its name, is always empty—the normal state. The ileum always contains some bismuth while the cecum is filling.

An Unusual Case of Gastric Tetany.—EDENHINZEN (*Archiv fuer Verdauungskrankheiten*, Pt. 4, Vol. XI.) recites a case in which attacks of tetany were provoked by a gastric disturbance, yet in which there was much doubt as to whether the mild gastric trouble was the primary cause of the attacks. The paroxysms could also be called forth by special psychic influences, the patient being a profound neurasthenic. The attacks were primarily typical tetany attacks, but afterwards evolved into pseudo-tetany on the basis of neurasthenia. As for the cause of tetany, the author is not entirely clear as to which theory to apply to this case. The theory of autointoxication could hardly be applied here, inasmuch as there was no gastric retention.

A Clinical and Laboratory Study of the Therapeutic Value of Hydrochloric Acid—Diseases of the Stomach.—CHASE (*Boston Medical and Surgical Journal*, September 14, 1905,) presents a review of the literature on the subject of hydrochloric acid in diseases of the stomach, and the results of his own observations, based upon clinical and laboratory studies. He has noted (1) the immediate effect of large doses of HCl upon the acidity of gastric contents, (2) effects of large doses of HCl given after a large meal, (3) the effect of long-continued use of large doses of HCl upon gastric secretion and (4) the effect of large doses of HCl upon peptic digestion. The sum and substance of the literature and of his experiments yields but little in favor of the use of large doses of HCl, and some evidence that such employment of the acid may be harmful. He believes that the use of small doses often results in the alleviation of certain symptoms, but questions if it ever improves any function of the stomach. It is chiefly from the nervous gastric disorders that favorable results come from the empirical use of the acid. This test, however, is not a correct one by which to judge the therapeutic value of hydrochloric acid, for the acid is not indicated in such cases.

Acute Dilatation of the Stomach.—NECK (*Centralblatt fuer die Grenzgebiete der Medizin u. Chirurgie*, No. 14 and 15, Vol. viii) presents an exhaustive review of the literature on acute dilatation of the stomach, a condition which he describes as a sudden distention and disturbance of the functional energy of the stomach, with stormy symptoms, arising in a case in which no marked disturbance previously existed. The subject matter is a careful review of the results of autopsies, experiments and clinical observations, presenting some fifty literature references.

Cholecystitis Typhosa.—DOERR (*Wiener Klinische Wochenschrift*, No. 34, 1905) conducted an interesting series of experiments on animals with reference to the disposition of typhoid and other bacilli in the bile. The experiments were prompted by the observation of a case of empyema of the gall bladder on the basis of an old cholelithiasis. The patient had had typhoid fever, and the pus as well as the nuclei of the numerous gallstones contained typhoid bacilli in pure culture.

The results of the author's experiments show that living bacteria injected into the blood vessels soon find their way into the gall bladder (within eight hours or less). Those injected into the peritoneum, skin or stomach do not appear in the bile. Typhoid, paratyphoid, coli and dysentery bacilli develop and grow in the bile, and can be demonstrated there in large numbers as late as four months, long after they have disappeared from the blood, bone marrow, urine and the liver. The typhoid bacilli injected intravenously in the rabbit produce a purulent though transitory inflammation of the mucous membrane in the gall bladder. The growth of the germs in the bile does not tend to prolong the agglutinating qualities of the blood originally produced by the injections. This tendency disappears soon after the discontinuance of the subcutaneous or intravenous injections. From time to time the bacteria are expelled with the bile and may be demonstrated in the feces. Antiseptics, whether injected or taken intravenously, seem to exert no influence over the bacteria in the bile.

The Constant Presence of the Spirochæta Pallida in Syphilitic Tissues of Man and Monkey.—KRAUS and PRANTSCHOFF (*Wiener Klinische Wochenschrift*, No. 37, 1905), find that the spirochæta pallida does not occur in the healthy tissues of the human being and monkey, nor in tissues affected by other than syphilitic processes. On the other hand it is constantly present in the lesions and products of syphilis. In view of these constant findings, and the fact that it is also found in lesions experimentally produced in the monkey, the authors conclude with a great degree of certainty that the spirochæta pallida is the cause of syphilis.

The Relation of Pleurisy to Tuberculosis.—VON RUCK (*N. Y. Med. J'l.*, September 30, 1905).—Formerly the pleural cavities were regarded as exceedingly well protected against localization of bacteria, not only because of the protection afforded by the chest wall but because the lymphatic system of the lungs was supposed to carry centripetally away from the pleura everything otherwise liable to reach it. More recent investigations and clinical observations lead to opposite conclusions. After weighing the data at hand the author concludes that the pleural cavities are readily accessible to bacterial invasion, and that the great majority of pleurisies with effusion are due to infection with tubercle bacilli. This is proved by autopsy findings, methods of exact diagnosis and subsequent clinical histories. The so-called idiopathic dry pleurisies are likewise usually tuberculous.

The subjective symptoms of inflammation of the pleural apices often simulate those of myalgia or rheumatism.

Tuberculosis should be suspected in every case of pleurisy or persistent pain in the chest or shoulder which cannot be ascribed to other causes, and if the physical examination proves negative, the patient should be regarded as tuberculous, and should be kept under careful observation. The tuberculin test may be relied upon to confirm or exclude the tuberculous nature of pleurisy in case of doubt.

The application of these principles will lead to an earlier recognition of tuberculous disease of the lungs, and to the institution of a treatment at a period which will in many cases secure to the patient most important advantages in his prospects for recovery.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

Chronic Ulcer of the Stomach and First Portion of the Duodenum.—WILLIAM J. MAYO (*Journal American Med. Association*, October 21, 1905).—We have in this article the most valuable single contribution to the treatment of this subject. Dr. Mayo, in a most discriminating manner, exhausted the material of the Rochester clinic in this paper. He shows in addition by statistics that post-mortem examinations and earlier clinical studies have not given us by any means a correct idea of the frequency of these lesions or of their numerical relation to one another. He and Dr. C. H. Mayo have operated nearly eight hundred times for stomach and duodenal disease, consequently there is no question as to their authority to speak on this matter. During the last two and one-half years they have done gastro-enterostomy 231 times for ulcer and found sixty of these in the duodenum alone, while fourteen involved both duodenum and stomach. Older authors will no doubt be astonished to find that so large a number of these lesions affected the duodenum. What seems of the greatest value to us in this article, remembering how vast the author's experience has been, are his conclusions regarding the definite results. He impresses as firmly as possible that nothing is to be expected from operations upon nervous individuals with gastric neuroses and almost equally little from operations upon those who are the subject of atonic dilatations merely. The author's experience has convinced him that the patients who have some actual mechanical hindrance to the passage of food over the pylorus, the result of ulcer, are those who profit by gastro-enterostomy. He does not operate in case of an acute ulcer unless a complication such as perforation, hemorrhage, etc., influences him to use radical measures, but does accomplish the greatest good in those chronic cases with frequent relapses. The history of gastric surgery is about five years old, and the best of it not more than two years old; hence one cannot expect much reliable information from the older books and, the author is sorry to state, from modern books on internal medicine. The Mayo mortality has been less than 3 per cent. in the last 150 suture gastro-enterostomies. They make the opening behind as low as possible and with a short intestinal loop. Past disappointments have been due largely to faulty technique and thus failing to secure good stomach drainage, but the future ought to see nothing of this kind. It is interesting to note that these patients came from twenty-six states and Canada, less than 20 per cent. belonging in Minnesota.

The Permanent Results of the Operative Treatment of Basedow's Disease.—FRIEDHEIM (*Arch. f. Klin. Chir.* Band 77, Heft 4).—This article comes from Dr. Kummell's division at Hamburg, where twenty cases were treated by partial removal of the thyroid gland. The results, both temporary and permanent, were so good that the author was thus in-

spired to investigate the experience of other large German clinics with the following results: Up to 1900 Rehn had a mortality of 21.1 per cent. with 50 per cent. of cures. However, in the twenty cases under especial consideration there was a mortality of only 5 per cent. with 70 per cent. of cures. This shows conclusively that the technique of surgery is gradually but surely improving. It is very interesting to note that the author states that Mikulicz with eighteen cases had ten cures and one death. Kroenlein operated on twenty-four cases, of which two resulted fatally; sixteen were cured. The largest number of cases, as may be naturally supposed, were operated upon by Kocher, namely, fifty-nine. Of these forty-five were cured and four died. Koenig had but eight cases, of which four were cured and one died. From all the statistics at his command the author is able to state that there is practically no medical treatment which will result in a cure of the disease, while if left alone about 12 per cent. of these patients die; consequently we have even a stronger reason than would otherwise be the case, for operating upon patients who do not spontaneously recover.

A New Procedure Common to Gastrostomy and Jejunostomy.—ACRE (*Revue de Chir.*, September, 1905).—As the author rightly states, there are two requirements in making these operations which must be met. The first is that liquid food pass in easily and not regurgitate; the second is that there be no escape of bile or pancreatic fluid. The proposed operation is as follows: (1) Laparotomy where it may seem most desirable. (2) Grasp desired viscous and bring it to the surface. (3) Suture visceral and peritoneal surface, together, making the jejunum cross the wound from left to right. (4) Closure of the abdominal wound excepting a small space which allows a view of the intestinal wall large enough to admit a small catheter. (5) Twenty-four hours later the intestine is opened, the catheter is introduced and food nourishment poured in through it, the point of the instrument being 8 cm. to 10 cm. deep and inclined to the right if the gut is used. If only 200 cc. to 300 cc. have been introduced, and this is not done oftener than every two or three hours, a perfect functional result will be obtained.

Clinical Observations in Glycosuria After Ether Narcosis.—ROEHRICHT (*Zentralbl. f. Chir.*, September 23, 1905).—In order to get at the results which he publishes, the author examined for sugar the urine of one hundred patients after ether narcosis. Of these, fifty-three were men. Twelve patients, eight of them men, showed a glycosuria, and the largest amount of sugar excreted by any one was 1 per cent. The author does not claim to draw any very definite conclusion from so modest a number of patients, but it does seem to him as if advancing age predisposes to this anomaly. He tried to see if there was any relationship between trauma and glycosuria in these cases, but none was apparent. We have long known that this phenomenon appeared after chloroform narcosis, but it is interesting to note that the same thing may in less degree be expected after ether.

The Surgical Treatment of Non-Cancerous Affections of the Stomach.—MAYO-ROBSON (*Gazette des Hôpitaux*, September 23, 1905, the First International Congress of Surgery, Brussels, 18-23 of September, 1905.)—The author has done almost five hundred stomach operations, and has seen a large number of these patients who were not operated upon. He is therefore in a position to judge of the relative value of surgical and medical treatment of these cases. He has made it his study to observe the remote results of such operations, consequently his conclusions are of far more than ordinary value. The operative mortality where a gastro-enterostomy is done for ulcer of the stomach is very small. He had one series of seventy-seven cases in which not one was lost. In his entire list of these operations the mortality has been 3.7 per cent. There should be no complications, such as vomiting, vicious circle, etc., if the operation is properly done. The remote results, where there is pyloric contraction and resulting dilatation of the stomach, are satisfactory, but those cases of atonic dilatation are not improved. In the case of hemorrhage, it is usually not necessary to search out the bleeding point or to excise the ulcer, a gastro-enterostomy putting the viscus at rest does all that could be desired. In the treatment of chronic ulcer by these means 92 per cent. of cures have been obtained at the author's hands. He does not consider that pyloroplasty is of permanent good, although it may give very satisfactory immediate results. Finney's operation is a brilliant conception, although its performance is too recent for definite conclusions. The mortality of cases which are not operated upon can be generally construed as being about 25 per cent. The author gives preference to the posterior operation; he makes the opening as low as possible and uses the short loop. He uses a suture method around his bone bobbin. One is struck in comparing the article of Mayo in America with that of Robson in England, by the fact that the two greatest English-speaking specialists on this subject have arrived at almost identical conclusions.

The Operative Treatment of Purulent Meningitis.—KUMMELL (*Archiv f. Klin. Chir.*, Bnd. 77, Hft. 4).—The author goes so far as to say that he will in future, in epidemic cerebro-spinal meningitis, when the lumbar puncture does not relieve the condition, make an extensive opening of the subdural spaces of the head. We have long become a unit in thus treating similar infections the result of ear disease. No one now hesitates to open them and drain them widely. Eight out of twelve such cases are on record in literature as being completely cured. The author reports a case of purulent meningitis after basal fracture in which operation saved the patient's life, even after lumbar puncture had demonstrated the presence of pus. In one day the patient was very much better and went on satisfactorily to complete recovery. This was a diffuse meningitis, although, of course, it cannot be classed as one of the epidemic variety. Still, the author feels justified in concluding that a similar result might be obtained in this other most dreaded class of cases. It may be necessary to open either spinal canal or the cranial cavity or possibly both.

The McGraw Ligature.—A. J. OCHSNER (*Journal Am. Medical Association*, October 21, 1905).—This author has more than any other one surgeon brought the McGraw ligature into prominence. He has used the method 156 times and concludes that it accomplishes its purpose in a satisfactory way, that the opening can be made any desired size, that the risk of infection to the peritoneum is greatly lessened, that it can be done quickly, that it requires no special skill or ingenuity. The patients show very little shock after such an operation. They are relatively free from pain and can sit up in bed with a head-rest a few hours after operation. The method should not be employed, however, in making a pyloroplasty or in making a cholecystenterostomy. Several steps which Dr. Ochsner has formulated will be of great use in guiding those unfamiliar with this operation. (1) A round rubber cord 2 mm. in diameter should be used. (2) A posterior row of Lembert sutures is placed. (3) A long straight needle armed with a rubber cord is passed into the lumen of the intestine and out again at the desired distance, *i. e.*, from 5 to 10 cm. away from the point of introduction. (4) With the rubber stretched thin it is drawn through the intestine. (5) The same is repeated in the stomach. (6) A silk ligature is laid under the point where the ends of the rubber cross. (7) A single tie is made in the rubber ligature. (8) The silk is tied over the rubber knot. (9) The rubber ends are released and cut off. (10) The Lembert suture is continued around in front of the ligature. (11) Care must be taken not to tie the ligature behind the posterior row of Lembert sutures. Of 124 operations done in one hospital, five patients died, but these were all greatly reduced by disease and died of exhaustion. In some of them the most complicated multiple operations were performed. Dr. Ochsner is evidently enthusiastic over the method and one must be impressed by the opinion of so well known a judge of surgical technique.

DIAGNOSIS.

IN CHARGE OF

A. E. TAUSSIG, M. D.

The Detection of Acet-acetic Acid in the Urine.—L. LINDEMANN (*Muench. med. Wochenschr.*, 1905, No. 29).—In the March number of this journal, we described a new test for acet-acetic acid in the urine, according to Riegler. To 15 cc. urine, 2 cc. of a 10 per cent. solution of hydriodic acid are added, the mixture then being shaken with a little chloroform. In the presence of acet-acetic acid, the chloroform remains colorless, whereas in its absence the chloroform is stained red by the iodine set free. Hydriodic acid is used instead of iodine, because the test is reliable only if the reaction of the mixture is strongly acid. In alkaline or neutral solutions, many other substances set free iodine, whereas in acid solutions only diacetic acid will do so. Ordinarily the acidity furnished by hydriodic acid will suffice. If, however, the urine be strongly alkaline, the mixture may fail to be acid, so that the reaction may be

positive even in the absence of diacetic acid. Lindemann has modified Riegler's test so as to overcome this source of error. Acidify 10 cc. urine with five drops dilute acetic acid or enough to make it distinctly acid; then add five drops Lugol's solution (iodine 1.0, potassium iodide 2.0, water 100.0), shake and add 2 cc. chloroform. The chloroform takes on the iodine color only if diacetic acid be absent.

This modification is quite as delicate as the original test and is more trustworthy. It has, moreover, the advantage of requiring only such reagents as would be on hand in every clinical laboratory.

Pavy's Method of Determining Glucose in Urine.—SAHLI (*Deutsch. med. Wochenschr.*, 1905, No. 36).—In his text-book, Sahli has expressed himself very sceptical as to the value of Pavy's method of determining the percentage of sugar in urine. As is well known, Pavy's method differs from Fehling's in that by means of the addition of ammonia, the precipitation of cuprous oxide is prevented. The end reaction is characterized by the complete decolorization of the test fluid. Further experience with the method has now convinced Sahli that it is by far the most satisfactory one for routine glucose determination. He explains his change of opinion by stating that the trustworthiness of the method depends absolutely upon the observance of certain precautions not sufficiently emphasized by Pavy. For a discussion of the question the reader must be referred to the original article. Suffice it here to state that the precautions requisite according to Sahli are: 1. The test fluid must be sufficiently diluted with distilled water (best 1 to 4); 2. The test fluid must be kept boiling very slightly during the course of the determination, not violently, as is often done.

A New Test for Indican.—A. GURBER (*Muench. med. Wochenschr.*, 1905, No. 33).—Jaffe's test for indican has the fault that exactly the proper amount of chlorinated lime must be used. If too little be taken, not all the indican is oxidized to indigo-blue; if too much, the indigo-blue is again decolorized. Obermayer's test, in which ferric chloride is used, is much to be preferred, but is a little complicated. The writer suggests the use of osmic acid as the oxidizing agent. His test is done as follows: To a test-tube, one-third full of urine, add twice this amount of concentrated hydrochloric acid and two or three drops of a 1 per cent. solution of osmic acid. Shake well. The mixture will be colored violet, bluish violet or deep blue, according to the amount of indican present. The indigo may be extracted with chloroform as in the other tests.

Staining Urinary Sediments.—WEDERHAKE (*Muench. med. Wochenschr.*, 1905, No. 37).—Many methods have been recommended for staining the organized urinary sediments, none of which have given entire satisfaction. Most of them cause unpleasant precipitation of pigment, others stain the casts irregularly and incompletely. The writer uses a one per cent. watery solution of neutral red, which, in his hands, has given good results. The urine is centrifugated, the fluid poured off from the sediment, a drop of the neutral red is added, the tube refilled with water or saline solution and again centrifugated. The casts, pus and epithelial

cells are stained red and can be easily found and recognized, even if present in extremely small numbers.

Still better results are obtained if a double stain is used. To 20 cc. of a 1 per cent. neutral red solution add 10 drops of a saturated alcoholic solution of methyl-violet. Two or three drops of this mixture are used in the same manner as the neutral red solution. Waxy casts then stain blue, all others, as well as the cells, red. Crocein-scarlet 7 B, with a little iodine, gives even more highly differentiated pictures.

It would seem, however, that staining urinary sediments will rarely be worth while unless, indeed, the number of casts is so few that many slides must be examined rapidly. In this case a single cast is less apt to escape detection if stained than if colorless. Perhaps, where no centrifuge is at hand, and where the sediment obtained on standing is to be examined, the addition of one of the above stains will aid in the rapid finding of casts. None of them, we are told, produce precipitates of pigment.

The Detection of Albumose in the Urine.—FITTIPALDI (*Riforma med.*, 1905, No. 35).—None of the simpler tests for albumose in the urine are either very delicate or quite trustworthy. Fittipaldi suggests applying a reagent similar to that of Spiegler (which, as is well known, precipitates both albumen and albumose), to urine freed from albumen. His method is as follows: To 5 cc. urine add 5 drops of a saturated solution of trichlor-acetic acid. Boil. If this produces no precipitate, allow the mixture to stand five or six hours until a sediment forms. Then filter and add a solution of mercuric iodide in potassium iodide. In the absence of certain alkaloids, especially quinine, a precipitate indicates the presence of albumose.

The Diagnostic Puncture of the Testicles.—C. POSNER (*Berl. klin. Wochenschr.*, 1905, No. 35).—Before undertaking the treatment, operative or internal, of azoospermia, it is essential to ascertain whether the absence of spermatozoa in the semen is due to mechanical obstruction somewhere or to failure on the part of the testes to produce the male elements. For this purpose Posner advises the puncture of the testicle and aspiration of a drop of its contents. The skin is sterilized scrupulously, a hypodermic syringe with rather large needle is used, and the drop so obtained examined microscopically. The little operation is almost painless, is never followed by ill results (perfect asepsis being pre-supposed), and gives positive information regarding the secretory power of the testis. In all of his observations except one, the spermatozoa so obtained were motionless. This is in accord with the generally adopted theory that the addition of prostatic secretion to the semen is requisite for giving the spermatozoa motility. In one of his cases, however, for some unknown reason, the aspirated seminal secretion showed very active motion.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

Action of the Toxic Agent of Lobar Pneumonia.—BREM (*Johns Hopkins Hosp. Bull.*, October, 1905,) has based his observations on a study of the temperature, pulse, respiration, blood pressure and urinary output in a series of typical cases of lobar pneumonia, which he has divided into two groups—the mild and the severe. The action of the toxic agent in the disease he sums up in the following words:

"1. Phenomena of the mild action bear the features of stimulation of the central nervous system and cardiac muscles.

"2. Phenomena of severe intoxication appear to result from intensified stimulation, or enfeeblement and exhaustion from overstimulation.

"3. Death occurs from (1) respiratory insufficiency terminating in asphyxiation or in exhaustion of the respiratory center, or (2) circulatory insufficiency, which leads, presumably, to accumulation of the toxic agents, and which may induce cedema of the lungs or end in exhaustion of the heart muscle."

Particularly important is the point that the stimulation which results in such well-known increase in the respiratory rate actually reduces the amount of air (oxygen) which reaches the alveoli, because with increased rate the depth of respiration diminishes, the proportion between the tidal air and the capacity of the bronchial tree becomes comparatively less, so an insufficient quantity of oxygen reaches the alveoli. Overstimulation of the respiratory center may thus directly cause asphyxiation of the patient.

The ends to be accomplished by treatment are, therefore, the elimination of the toxic agent and amelioration of its harmful effects, especially control of the overstimulation of the respiratory center. The most efficient means of eliminating the toxic agent is by *internal hydrotherapy*—that is, by passing through the circulation the greatest possible quantity of fluid, in the hope that in its elimination through the kidneys as much as possible of the toxic agent will be carried out with it. This is supported by the author's observation that during the twenty-four hours preceding improvement in cases of pneumonia the urinary output is increased to a remarkable degree. A case is reported in which the patient very faithfully followed the instructions to drink water freely, and voided 25,400 cc. of urine in the twenty-four hours preceding the crisis, which occurred on the fourth day.

For the control of the overstimulated respiratory center, Brem suggests relatively large doses of heroin hydrochlorate, used hypodermically, in all cases in which the respiratory rate is 36 or more. Heroin reduces the rate from 30 to 50 per cent. and markedly deepens the individual respirations. In this respect it is more efficient than morphine, which, however, may be substituted for it in alcoholics, in which the heart usually bears heroin badly.

Oxygen inhalation, though it reduces the cyanosis and deepens the re-

spiratory movements at the time, is very evanescent in its effect, causes much restlessness and discomfort, and, if the oxygen forms a large part of the respired air, may easily produce an active bronchial inflammation.

The circulation is favorably influenced by general measures, as external hydrotherapy and the narcotics suggested for influencing respiration. Brem considers alcohol of service only in so far as it has a narcotic effect, or in alcoholic individuals. Where enfeeblement of the respiratory or circulatory apparatus has begun it is probably contraindicated.

Of actual stimulants, only such may be used as do not affect the central nervous system, in order that the overstimulation of the respiratory center may not be exaggerated. Such a stimulant is found in tincture of digitalis, which should be used when signs of a failing heart appear. It should be given in sufficient quantity—15 minims every four hours.

The summary of therapeutic measures may be quoted:

1. Elimination of the toxic agent—*internal hydrotherapy*.

2. Amelioration of harmful influence:

(a) Fever, *external hydrotherapy*; pain, *ice bags and analgesics*; restlessness, insomnia, delirium, *external hydrotherapy, analgesics and narcotics*.

(b) Respiratory indications: (1) *Heroin or morphine* every 2 hours for a respiratory rate of 36 or greater. (2) *Oxygen inhalation* is probably useless, and may be harmful.

(c) Circulatory indications: (1) Circulatory sedatives are probably contraindicated. (2) Alcohol indicated in alcoholic cases; may be of benefit when there is no circulatory insufficiency. (3) Circulatory stimulants contraindicated except members of the digitalis series. The indication is low blood pressure associated with one or more of three conditions, namely, respiratory insufficiency, small urinary output, œdema of the lungs.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

An Inquiry Into the Etiology and Pathology of Beri-Beri.—HAMILTON WRIGHT (*The Journ. of Trop. Med.*, Vol. 8, 1905).—The paper extending over four issues of the JOURNAL is an abstract of the official report of Wright, who as director of the department of medical research, Federal Malay states, has had opportunity to study the disease under the most favorable conditions. His conclusions are based on observations extending over many years, and the conditions were such that they fulfilled in some directions the exactness of experiments. Only in a few words the general results may be quoted; the details of the work will be found of the highest interest and importance for all future studies of this heretofore mystic disease. Wright's main point is the estab-

lishment of its infectious character and the entire elimination of all theories basing its etiology on toxic influences arising from different varieties of food. Wright's observation may be taken as proof that a bacterium, causing an acute infection of the gastro-duodenal portion of the intestinal tract, rarely of the intestine itself, produces a toxin leading to atrophic changes in the nerve-fibres, thus giving rise to the symptoms of the active stage of the disease. The period of inoculation was determined as short as ten days; the active stage can last from a few days to a few weeks. Patients not dying during this time represent the chronic form of the disease, that is, only the effect of the lesions set during the active stage. In tropical literature this chronic disease goes under the name of beri-beri residual paralysis. The transmission of the disease is effected by contact with the secreta of beri-beri patients; the careful observations and statistics compiled by the author in this direction on prisoners in several large prisons evidently prove that by prevention of such a contact the disease can be easily eliminated. In judging Wright's work, the specific nature of the infecting bacillus is still somewhat hazy and a more definite working out of the life history of this organism is necessary. The merit of the work, however, lies, not in this theoretic question, but in the final determination of the infectious nature of the disease, by demonstrating the mode of infection and giving the means of preventing infection. As to tropical diseases, Wright's contribution is one of the most important recently made.

Report of Working Party No. 2, Yellow Fever Institute.—Experimental Studies in Yellow Fever and Malaria at Vera Cruz, Mexico.—M. J. ROSENAU, H. P. PARKER, E. FRANCIS, G. E. BEYER (Yellow Fever Institute, Bulletin No. 14., May, 1904).—The yellow fever epidemic of the South, now subsiding, has given rise to a number of literary medical achievements, in which the critical tendency of the writers in the attempt to be specifically scientific and logical has tried to undermine the great work that has given us the knowledge of the etiology of the disease and the means to combat and prevent it. Aside from the point that such attempts in science should not be made merely on the basis of theory in opposition to established facts, which cannot be overturned by a single contradictory fact, they have the effect practically to aggravate and to make difficult conditions that we have knowledge can be governed by the conclusions drawn from the work already done. In the late epidemic, too, there is no doubt that they have greatly increased the already great difficulties that obtained. The report quoted as the subject of these remarks cannot be welcomed too warmly as an indication of the direction in which further proofs or objections for the modern yellow fever theory ought to be obtained. Written in a plain, unadorned way, it reveals a method of investigation that we intrinsically feel is the one to be pursued to clear up doubts and to confirm or refute. In its simplicity of expression the report almost makes one forget the immense amount of work it represents, the result of which is given in its lines. Every line means days and weeks of hard and self-denying effort. The report brings nothing especially new; but for one acquainted with the difficulties with which these investigations are surrounded, the result is of great importance. Again in an

unobjectionable way, proofs are brought for the correctness of the ideas made the guiding star of the fight against yellow fever. In a practical way we are again convinced that we have mastered the disease, and that it is hardly possible that in the future, important alterations of our views can be made. The etiologic agent, as such, has remained unknown in spite of the newspaper and other reports of its discovery. Yellow fever has been mastered without the microscope showing its face, just as other diseases have yielded to similar methods. With our present means of observation it is not likely that we will soon get much further. The work of the commission is a contribution worthy to be attached to the immortal work of Reed, Carroll and Lazear. The observations upon the discovery of a toxic substance in the blood of a malarial patient at the time of chill, able to produce similar symptoms when injected into a normal individual, is very suggestive but needs further extension and interpretation.

About the Aggressive and Immunizing Action of Staphylococcus Exudates.
 —E. HOKE (*Zeitschr. f. Hyg. u. Infect. Krankh.*, Vol. LX, Heft 3).—Bail succeeded in protecting animals against infection with cultures of staphylococci by injecting living leucocytes into them. From this it was assumed that leucocytes form an important protective agent against bacteria either by preventing the production of toxins or by binding or neutralizing the toxins already present. If in staphylococcus infections a multiplication of the injected bacteria occurs, there appear substances elaborated by the bacteria and inhibiting the natural protective forces of the organism. Kruse first called them lysins. Bail designated them as aggressins. Hoke examined mainly the aggressive action of pleural exudates caused by staphylococci, and his results may be reviewed as follows: Rabbits injected simultaneously with aggressin and bacteria succumbed more rapidly to the infection than animals injected with bacteria alone. The leucocytic migration was less pronounced and exudates were not produced. Repeatedly injecting aggressin he succeeded in protecting rabbits against infection, the stimulation leading to the production of antiaggressins. In immunizing these rabbits the animals did not show any reactions, an observation which proves that aggressins are not identical with toxins.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

The Methods of Artificially Dilating the Pregnant and Parturient Uterus.
 —SIR WILLIAM J. SINCLAIR (*Jour. of Obst. of Brit. Emp.*, September, 1905). At the last Congress of the German Gynecological Society held at Kiel in June, 1905, this subject was thoroughly discussed. Leopold and Bumm, in excellent papers, first presented the two opposing views held at the present day by leading obstetricians, Leopold advocating quick dilatation by means of instruments like the Bossi dilator, Bumm

contending that all steel dilators are dangerous, and that the incision of the cervix undoubtedly is the preferable mode of procedure. Sinclair gives in his paper a very exhaustive review of these two papers and of the interesting discussion which followed. Both essayists found supporters of their respective views, possibly the majority being in favor of the Bossi dilator, as the instrument which can be used by the general practitioner without trained assistance. Sinclair concludes this review with a commentary, in which he gives his own opinion on the subject. He undoubtedly is exceedingly conservative. He repudiates both the steel dilator and the incisions, and claims that for earlier stages of pregnancy laminaria and the graduated bougies of Hegar, in later stages the colpeurynter prove sufficiently effective. Coming from such an authority as Sinclair, the following statement certainly is surprising: "Digital or manual dilatation all men with a sense of responsibility will agree in condemning. It is perhaps the most dangerous method of all, even when the os is dilatable. The effects which may be reasonably expected are laceration, hemorrhage and sepsis." It is obvious that, if Sinclair is right, most of the American authorities are "men *without* a sense of responsibility." Most of the American obstetricians sincerely believe in the value of digital dilatation of the cervix and successfully avoid laceration, hemorrhage and sepsis by using a little care and rubber gloves. Sir William has to concede "the casual objection that the laminaria tent may produce sepsis," but he does not believe in such a danger, because "laminaria tents may be more easily rendered aseptic than steel instruments." It is to be regretted that he does not describe his method of sterilization, but simply assures the reader that "they might be saturated with germicide fluids and made positively destroyers of bacteria."

The Permeability of the Tubes for Fluids.—BUTTENBERG (*Muenchn. Med. Wochenschr.*, No. 35, 1905).—In a series of experiments, made upon cadavers, the author studied the conditions under which a fluid injected into the uterus would pass through the tubes into the peritoneal cavity. He arrives at the following conclusions: If a double-current catheter is used, the tubes prove permeable only in the minority of cases; if a simple catheter is tied into the cervix, the fluid passes into the peritoneal cavity in more than fifty per cent. of the cases. As a rule, it is only a very small quantity of the fluid that finds its way through the tubes. In experiments with the syringe devised by Braun for intrauterine applications, he could press some fluid into the tubes almost in every instance in which force was used, but only if he tied the cervix around the canula of the syringe the fluid would penetrate into the peritoneal cavity. If a few drops were injected without undue force, fluid never entered the tubes, and from this the conclusion must be drawn, that Braun's syringe is free from danger if employed cautiously, in accordance with the generally accepted rules for its use.

The Auscultation of the Fetal Heartsounds in Early Pregnancy.—O. SARWEY (*Deutsche Med. Wochenschr.*, No. 33, 1905).—In the review of the gynecological literature of the year 1904 (January number of this journal) we had occasion to mention the claim of Sarwey, that he was able

to auscultate the fetal heartsounds in the 13th week of pregnancy. Von Herff doubted the reliability of this observation, because he was never able to hear any heartsounds in feti which within the first four months of pregnancy had been expelled alive. Sarwey argued against Herff that he himself auscultates the heart of a living, healthy fetus in the uterus, while Herff dealt with feti who were dying after having passed through the process of abortion. In this new contribution Sarwey asserts once more that it is possible to hear the heartsounds in the 13th week. They are most distinctly audible in a very low section of the anterior uterine wall approximately corresponding to the height of the internal os. It is advisable to raise the uterus slightly by means of a finger introduced into the vagina. The bladder must be emptied first. It often takes a long time and a great deal of patience on the part of the examiner until he has found the well circumscribed area where the heartsounds can be heard.

Insufflation of Oxygen Gas Into the Abdomen in Septic Peritonitis.—

COSTA (*Annali di Ost. e Gin.*, July 1905; rev. *Brit. Jour. of Obst. and Gyn.*, September, 1905).—The author relates two cases. In the first of these the patient, after an operation for extrauterine pregnancy, in which many close adhesions to the bowels were broken through, was found to be suffering from marked general sepsis. The abdomen was reopened and washed out with salt solution and was then distended several times with oxygen. This patient ultimately recovered.

In the second case the patient succumbed to septic peritonitis after an abdominal section performed on a rupture of the uterus in a neglected shoulder presentation. In her case the author injected oxygen into the abdomen, but without any perceptible benefit. Experiments on guinea-pigs and rabbits showed that after injections of bacillus coli into the peritoneal cavity, insufflations of oxygen were sometimes curative, but that after the injections of pyococci the oxygen merely delayed the lethal termination.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

The Treatment of Nephritis in Childhood, Based on Clinical and Experimental Observation.—WEIGERT (*Monatschr. fuer Kinderheilk.*, July, 1905) contributes a valuable and extremely suggestive article on this important subject. He begins by reviewing the literature on the subject of chronic nephritis in childhood, and shows by quotations from various authorities that the most divergent views prevail concerning all phases of the question. While the general consensus of opinion would appear to indicate that chronic nephritis in childhood is relatively rare, Baginsky holds that the subacute and chronic nephritides are much more common in children than is generally supposed, and he believes that these cases are "appallingly common."

With reference to the prophylaxis of nephritis after scarlet fever (and some of the other acute infections), the same diversity of opinion is apparent. Thus, in scarlet, many authorities hold that prolonged rest in bed, with absolute milk diet, are prophylactic measures of great importance, while other equally eminent authorities consider this procedure useless or even irrational.

Again, in the matter of treatment of an existing chronic nephritis, there is absolutely no uniformity of thought or view. On the one hand, it is held that milk diet is of the utmost value; on the other, it is claimed that such diet is directly injurious.

With a view to studying the question of diet in relation to the treatment of chronic nephritis in childhood somewhat carefully, the author took four cases in his children's clinic, all typical cases of chronic nephritis, and put them on strictly controlled diets of varying kinds for definite periods of time. During and after these periods exceptionally careful analyses of the urine were made, and the general condition of the cases carefully studied.

Particular attention was also paid to the question of the amount of NaCl ingested with the food, in view of the interest now attaching to this question in relation to chronic nephritis.

The results of these studies are carefully tabulated, and while all of the details cannot be given here, the conclusions of the author may be quoted in full.

Albuminuria in chronic nephritis is most greatly *increased* on a purely meat diet. This holds good even though the ingestion of NaCl be simultaneously decreased to its possible minimum.

The albuminuria is *diminished* most decidedly by a purely vegetable diet. After meat, the greatest degree of albuminuria follows the use of a strict milk diet, with eggs and mixed diet next in order in the descending scale.

The addition of spices to the food apparently has no bad effect upon the condition.

In the diet of nephritis with edema and anasarca, the quantity of NaCl in the food is of the utmost importance. By the giving of food with the minimum quantity of NaCl, without other therapeutic measures, the excretion of the retained fluids can often be attained. But it is to be noted that in the course of this treatment, in spite of the increased elimination of the Cl and N products, an uremia may ensue.

But in many cases treated in this way, following the removal by excretion of the retained fluids, and possibly dependent upon changed circulatory conditions, a marked improvement in the general condition, and a great diminution of the albuminuria is to be noted.

Holding Breath Spells in Children.—NEUMANN (*Arch. f. Kinderheilk.*, Vol. 42, p. 99) calls attention to the frequency of this condition, to which little attention is paid in the literature. The condition is found most often in nervous children. As a result, usually, of nervous excitement, the child suffers a momentary spasm of the muscles of respiration, becomes markedly cyanotic, at times quite unconscious. During the attack the child usually falls backwards, and the spasm ends with a loud cry and a forced expiration. The duration of the attack is usually

measured by seconds. Spasm of the glottis is never associated with the condition. Examination also shows the absence in nearly all cases of the symptoms of tetany, with which the condition cannot be brought into relation. The spasm has nothing to do with epilepsy. The importance of the condition lies in the diagnostic significance that its presence affords of a neuropathic constitution. Neumann holds that the condition may be regarded as a very early sign of neurasthenia. Inasmuch as the attacks rarely occur after the fifth year, and as they are never fatal, their importance is to be found merely in their suggestiveness as to a neuropathic temperament, or as manifesting a very early sign of a neurasthenia, to be later more fully developed. The treatment of the attack consists in irritation of the skin by throwing cold water in the face, and the general treatment is that of neurasthenia.

(It is interesting to note that in his classic work on diseases of children, published in 1849, Forsyth Meigs gives an account of this condition and of its significance, which in every essential tallies with Neumann's, except, of course, that the word neurasthenia does not occur.—Ed.]

Rheumatism in Childhood.—DEALE (*Archives of Ped.*, August, 1905) believes that the infectious character of rheumatism has been established; that the micrococcus rheumaticus, described by Poynton and Paine and others, may, with a good deal of probability, be considered the exciting cause. Even though the toxic specificity be not definitely settled as yet, the circulation of some toxin is evidenced by the concurrence of pyrexia, rapid anemia, erythema and purpura, polyarthritis, pericarditis, endocarditis and myocarditis.

As predisposing causes, cold and heredity undoubtedly occupy leading positions. The disease is unquestionably very common in childhood, but is doubtless very frequently overlooked, because the arthritic manifestations are often so slight—or, indeed, wholly absent. Tonsillitis or pharyngitis may be the first or only manifestations of the rheumatic state. Torticollis and growing pains are apt to be of rheumatic origin. Purpura and erythema are much more common in childhood than in later life, and subcutaneous nodules are not infrequently found at this time of life.

The cardiac manifestations are by far the gravest, and they are particularly common, and very often particularly severe, in childhood. The endocarditis may come on insidiously, its existence unknown and unsuspected until some other rheumatic manifestation leads to the examination of the heart. Even when the endocarditis is discovered during the course of the disease, the symptoms are often very vague; there may be only rapidity of the pulse, with irregular heart action, with the later development of a soft, blowing, apical, systolic murmur.

The author emphasizes the importance of the following diagnostic points:

- (1) Family history, particularly a history of rheumatism on both sides.
- (2) Previous history as regards joint stiffness without swelling, growing pains, nose bleed, or frequent attacks of tonsillitis or erythema.
- (3) Present condition with reference to anemia, malaise, listlessness, bronchial or gastric catarrh. Attacks of slight temperature without ap-

parent cause are always suspicious, particularly if they be at all persistent.

(4) Careful examination of the heart, often repeated, as to increase of precordial dullness, abnormalities as to rate or rhythm, soft apical murmurs with reduplication of the second sound.

In the treatment of the heart conditions of rheumatism the author lays particular stress on the value of prolonged rest, an observation which is in accord with the observation of the leading authorities of the day.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

A Study of Brachial Birth Palsy.—L. P. CLARK, M. D., A. S. TAYLOR, M. D., and T. P. PROUT, M. D., of New York (*Am. Journal of Medical Sciences*, October, 1905).—This form of palsy is undoubtedly as old as is forcible intervention in obstetric practice. It was described first by Duchesne in 1872 as being a palsy due to traction. Evidence exists, however, that these arm palsies occurred as far back as two hundred years ago. A careful review of the literature makes it evident that with very few exceptions obstetric palsy is due to manipulation during delivery. The superior arm is the most frequent type, more rarely the lower arm type has occurred, very rarely total palsy is reported. Now and then cases of individual muscle paralysis have been reported in obstetric palsy. The predisposing factors in the production of this lesion are such disproportion between the size of the child and the maternal pelvis as would delay the easy progress of labor, and especially as would hinder the rotation and descent of the shoulders after descent and extrusion of the head, rigidity of the maternal soft parts, maternal exhaustion, and any other cause which would delay labor and, therefore, lower the vitality of the fetal tissues. It is erroneous to suppose that laceration birth palsy occurs only in mismanaged labor; it may easily result in highly skilled hands, as is shown by its occurrence at the birth of Emperor William of Germany, on which occasion Sir William Jenner acted as accoucher. Though many different causative factors are cited, the results are invariably of the same type, though differing in degree. This strongly suggests that one fundamental type of nerve injury underlies all cases. In order to determine what this fundamental injury may be, the authors have dissected several subjects and examined carefully the effect produced upon the brachial plexus by the various forcible manipulations liable to occur at delivery. In twenty experiments the lesion was produced in the fifth and sixth nerves sixteen times above the junction, twice at the junction and twice below the junction. The pathology brings out why complete regeneration does not follow the accident. As the several ends are in apposition in the vast majority of instances, it might be expected that union and recovery of function would occur without incident. The nature of the force producing the

lesion, however, is not such that the nerves are pulled apart and severed clean at a given point, but the lesion is incomplete at any given cross section of nerve bundles, and involves different fibers at different levels. The treatment is divided into three classes—(a), prophylactic; (b), palliative; (c), radical. The authors have subjected seven cases to the radical treatment, which consists in cutting down upon the brachial plexus through an incision passing from the posterior border of the sterno-mastoid muscle, at the junction of its middle and lower thirds, downward and outward to the clavicle at the junction of its middle and outer thirds. Two of these cases died shortly after the operation, one of shock and the other of suppression of urine. The other five recovered without the least evidence of shock or reaction. The proper time for surgical interference is not yet definitely fixed. At the present time one year would seem to be a reasonable delay before attempting operation. Two of the cases sufficiently demonstrate the value of operative procedure by their improvement in nutrition, range of motion and muscle power of the paralyzed limb.

Contusion and Laceration of the Mucous and Alar Ligaments and Synovial Fringes of the Knee-Joint.—CARLETON P. FLINT, M. D., New York (*Annals of Surgery*, September, 1905).—The author reports four cases where he operated, because there was recent history of injury combined with subsequent conservative care without beneficial results. It is a common thing to see abnormal knees with or without effusion. A diagnosis of the nature of the trouble is often impossible. The condition is called chronic synovitis, or is explained as being due to rheumatism, rheumatoid arthritis, or is simply called "chronic knee." The exact etiology cannot be determined. There is a history of trauma in a certain number of cases with a subsequent history of intermittent or continuous discomfort. It is not usual to operate on traumatic knees in the early stages unless there is a possibility of making a fairly accurate diagnosis. One feels justified in entering the abdominal cavity for exploratory purposes on very slight provocation. It is not so with the knee joint, however, where the powers of recuperation cannot be compared with those of the peritoneum, and the disastrous results of an infected knee are painfully impressed upon the minds of all except the most fortunate surgeons. The four cases reported were cases in which an absolute diagnosis was not possible, but it was highly probable that some lesion would be found, a supposition justified by the results. All four cases had two apparent subjective symptoms, pain and limitation of function. The author calls attention to the peculiarity of the anatomical condition involved, and shows that these ligaments are simply folds of synovial membrane, containing more or less fat. The diagnosis in these cases was contusion and laceration of the alar ligaments and synovial fringe. The pathological findings proved the clinical diagnosis to be right. The subsequent history of the cases proved the operation to be of decided benefit, as all cases had return of function and cessation of effusion. He states that there should be no diminution of fear of opening the joint, as such a diminution would be followed by a corresponding increase in the number of calamities. On the other hand, should there be after injury to the knee, local pain, effusion into the

joint, local swelling, with or without subjective or objective signs, and should these persist in spite of rational conservative care, or reappear after the cessation of treatment, the knee should be opened while the seat of the trouble can be recognized and before secondary changes have taken place.

The Ultimate Results After Bloodless Reposition of Congenital Hip-Joint Dislocation.—FREDERICK MUELLER, M. D., Chicago (*Medical News*, October 7, 1905).—Discussing the results obtained in cases operated upon by Lorenz during his visit in 1902, the author refers to thirty-three cases left under his care, in twenty-one of which anatomical results were gained, whereas, the number of subspinal positions was twelve. Taking into consideration the high average age of the children operated upon by Lorenz, the result, comprising over 60 per cent. of anatomical cures, and less than 40 per cent. subspinal positions, must be called good. Statistics of surgeons in the various clinics show clearly that Lorenz's promise of 50 per cent. success is not too optimistic, and that the bloodless reposition deserves the first place among all methods which may be considered in the treatment of congenital dislocation of the hip.

A Note on Congenital Dislocation of the Hip-Joint and Its Modern Treatment.—J. JACKSON CLARKE, F. R. C. S., London (*British Medical Journal*, September 30, 1905).—Congenital dislocation of the hip must now be classed with congenital club-foot among curable affections. This really great advance in surgery is due to Lorenz, who perfected the gymnastic and manipulative method of treatment. If the patient is submitted to treatment at a suitable age and the surgeon is experienced in the various steps of the operation, the method involves no serious risk, the patient invariably improves in general health and strength, and the after treatment may be carried out at home under the supervision of the family medical practitioner. A good deal has been said concerning the anatomical aspects of the Lorenz manipulative operation. Doubts have been expressed as to whether the reduction is a true one. As long as the functional effect is satisfactory, the previous disabilities being permanently removed, it hardly matters whether or not a portion of the joint capsule intervenes between the femoral head and the acetabulum, so long as it is removed by pressure atrophy. In nearly every case the head of the femur can be brought to rest on the acetabular surface, whether at the operation or subsequently. The dangers of the treatment are greatly exaggerated. Up to four years of age there is no need to cause anything approaching violent laceration of muscles. In older children up to the age limit, the necessary manipulations can be rendered free from danger by suitable preliminary preparations.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

A Contribution to the Ætiology and Symptomatology of Syringomyelia (Traumatic Origin, Syringomyelia and Hysteria).—CURSHMANN (*Deut. Zeit. f. Nervenheilkunde*, Band 29, No. 3 and 4, 1905).—This a valuable contribution to the literature of a disease which of late has come to be recognized as one of the most important of the organic forms of nervous diseases. Ever since the publication of Schlesinger's monograph, in which he asserted that syringomyelia was one of the most common of nervous affections, second only to tabes in its frequency, the attention of neurologists has been again directed to the study of its various symptoms and its pathology in order to test the accuracy of Schlesinger's observation. In respect to the traumatic origin of this disease there has been much difference of opinion until the article of Kienbock, which apparently settled the question against the traumatic origin. He analysed very carefully all the cases reported in literature, and came to the conclusion that trauma was an unimportant factor in the disease. Curshmann's paper is based upon a study of six cases in which the traumatic ætiology is clear enough to deserve careful consideration. Two theories are advanced to explain the pathogenesis of trauma in causing the disease: 1. The gliotic process is brought into activity through inflammatory stimulation originating in the periphery. 2. The syringomyelic changes in the cord become active through an ascending neuritis. These cases are studied in the light of these two possibilities, and the conclusion is reached that trauma is a factor in the causation of the disease or that it can arouse into activity the process which causes the disease. A very valuable part of this paper is the discussion of the differential diagnosis between hysteria and syringomyelia. In regard to this question the conclusions of the author may be stated as follows: 1. In regard to sensibility. There is no means of distinguishing the ordinary sensory disturbances in hysteria from syringomyelia. A real dissociation of sensation speaks for the latter. 2. Motility. Degenerative atrophy, increasing paresis and contractures are characteristic of syringomyelia. 3. Reflexes follow the usual rules. 4. Vasomotor and trophic disturbances of the skin of a mild grade cannot be used except with great care in the differential diagnosis. 5. All symptoms pointing to the sympatheticus cannot be imitated in hysteria and therefore speak strongly for the other.

A Sign of Organic Paralysis of the Lower Extremity.—J. GRASSET and A. GAUSSEL (*Revue Neurologique*, No. 17, 1905).—Any symptom which enables the neurologist to distinguish between a paralysis of organic origin and one of functional origin is worthy of attention, and therefore this new symptom should be given publicity so that there may accumulate sufficient material to test its accuracy and therefore its utility. The sign is as follows: In a paralysis of organic origin of the inferior ex-

tremity, especially in hemiplegia, the patient is able to elevate the paralysed member alone and is unable to elevate both extremities at the same time. This sign is not in accord with what we know in respect to the great facility with which associated movements in hemiplegia can be carried out. It can be interpreted as a proof of the paralysis of stability of the pelvis in the movements of flexion of the thighs upon the pelvis. The study of this symptom places it with the observations of Babinski and Marie in the analysis of motility in cases of hemiplegia. Lastly it enables us to differentiate between the organic and the inorganic paralysis, always a task of some difficulty.

Acute Anterior Poliomyelitis in a Youth.—HOCH (*Journal of Nervous and Mental Diseases*, September and October, 1905).—This study is based upon the case of a boy, sixteen years of age, who died thirteen weeks after the onset of the attack. From the findings in this case and from a review of the literature the author draws the following conclusions: 1. Anterior poliomyelitis is the result of a primary inflammatory disease of the blood vessels of the cord, which may be thrombotic or embolic. 2. The destruction of the ganglion cells is secondary and depends in part upon the deficient blood supply of the diseased area and in part upon pressure and toxins. 3. The pathologic processes occurring in poliomyelitis of children and adults are apparently identical and dependent upon similar causes. 4. There is sufficient evidence at hand to consider the disease, as a rule, of an infectious nature, however not depending upon a specific micro-organism, but resulting from infections of various kinds and at times from other poisons. 5. The inflammatory changes are present in the peripheral vessels as well as in the branches of the anterior spinal artery, though these changes are seldom visible until the vessels enter the gray matter. 6. The inadequate collateral circulation within the anterior horns is favorable for sluggish circulation and embolism.

Polyneuritis Cerebralis Menierformis.—BERGER (*Neurologisches Centralblatt*, No. 18, 1905).—This is an important observation which may throw some light on a group of symptoms sometimes found in conjunction with the meniere symptom complex and which has given rise to difficulty in interpretation. Frankl-Hochwart was the first to call attention to this form of cranial nerve involvement and Menieres disease. Only a few cases have thus far been published. The case here described presents the following symptoms: In a man fifty-five years old, with no previous history of ear trouble, and up to the time of the appearance of the symptoms, in good health, developed, after a light attack of fever as a result of chilling, a total right-sided facial paralysis, ear disturbances in the way of tinnitus, difficulty in hearing, a lowering of the sensation of touch on the right side of the face with herpes eruption. These symptoms came on with vertigo, nausea, vomiting.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

The Early Diagnosis and Radical Cure of Carcinoma of the Prostate.—YOUNG (*Bul. Johns Hopk. Hosp.*, Oct., 1905). We find here reported six cases of early carcinoma of the prostate in which the malignant nature of the disease was not recognized, and a partial operation was performed by the author. These cases impressed him with the need for early diagnosis and a radical method of removal. He proposes a radical operation as a routine for cases of carcinoma of the prostate, and gives histories of four operated cases. In this operation the author proceeds as he does in the operation he has performed for prostatectomy. After the under surface of the prostate is exposed in the wound, if it is malignant the radical operation is proceeded with, thus: the handle of the tractor is depressed, the membranous urethra anterior to it is exposed and completely divided transversely. By further depression of the tractor the pubo-prostatic ligament is drawn taut and divided with scissors, completely severing the prostate from all important attachments, except posteriorly. The lateral attachments are easily separated by the finger. The posterior surface of the seminal vesicles are now freed by blunt dissection. The now mobile prostate being well out of the wound, by depressing the tractor and making strong traction, the anterior surface of the bladder is exposed and incised at a point in the middle line about 1 cm. behind the prostatic-vesical junction, this division being continued on each side until the trigone is exposed. The ureters are now found and the line of incision carried across the trigone so as to pass 1 cm. in front of the ureteral orifices. The seminal vesicles and adjacent vasa deferentia are now freed anteriorly as high as possible and divided, thus removing the entire prostate with its capsule intact, the seminal vesicles, 4 cm. of the vasa deferentia and a cuff of the bladder. The anterior wall of the vesical opening is caught with forceps and united to the membranous urethra. The remainder of the vesical wound now presents as a longitudinal opening, which is closed by sutures. The wound is lightly packed with gauze, the levator ani muscles drawn down together in front of the rectum and the skin sutured, except at the angle in front, for exit of the gauze drain. The catheter is put through the meatus into the bladder.

Of four cases operated upon, one died from the operation; one died seven months later, following an operation for a stone which had formed in the bladder about a silk ligature. Autopsy showed recurrence of carcinoma. The third case recovered with continence of urine at night, but imperative desire in the day time and no evidence of return of the growth since the operation, February 16, 1905. The fourth case operated upon May 12, 1905, recovered, has no pain, urine passes entirely through the urethra, and rectal examination is negative. The patient feels well, but as yet has no control over his urine.

The author next considers clinically and pathologically forty cases of

carcinoma of the prostate and observes that partial operations are of no permanent utility. The question of early diagnosis is reviewed, and a markedly indurated prostate in a man over fifty years of age is regarded with suspicion. If it is of stony hardness it is very apt to be cancerous, especially if the cystoscope shows little or no enlargement intravesically as in the ordinary prostate.

If, after exposing the prostate and palpating it, the author is still in doubt, he removes a section and has it at once examined by the freezing method, when, if it is malignant, he proceeds with the radical operation.

Cure can be expected only from radical measures, and routine removal of the seminal vesicles, vasa deferentia and most of the vesical trigone with the entire prostate, as demonstrated on the four cases reported, is simple and effective, and markedly satisfactory functional results follow.

Contribution to the Study of Treatment of Wounds of the Ureter in the Course of Surgical Operations.—BERNASGONI and COLOMBINO (*Ann. des Mal. des Orig. Urin.*, Sept. 15, 1905.) Through experiments on dogs the authors have demonstrated the feasibility of anastomosing one ureter into its fellow, and sum up their investigations in the following conclusions:

When in the course of an operative procedure the ureter is accidentally wounded, the condition may be remedied in the following way: If the division is a few centimeters from the bladder, the ureter may be pulled down 3 to 4 centimeters and implanted into the bladder. If the division is higher up, either at the level of the iliac or the lumbar region, two expedients present themselves: (a) a simple section without a loss of substance, or with a slight loss of substance, when we may approximate the divided ends of the ureter and anastomose them according the methods of Van Hook or others. (b) section with loss of ureteral substance, rendering impossible the coaptation of end to end. In this case, in view of the satisfactory results obtained experimentally as here reported by the authors, lateral anastomosis of the two ureters with each other should be attempted. The operation is no more difficult or long than uretero-enterostomy and can be done easily, especially in women, at the level of the 4th or 5th lumbar vertebra.

Inflammatory Stricture of the Deep Urethra.—KEYES, JR., (*Ann. des Mal. des Org. Urin.*, Aug. 15, 1905.) Inflammatory stricture of the posterior urethra has been admitted by some authors but denied by the majority. This condition has been summed up by Keyes, Sr., as contracture of the neck of the bladder. From a series of cases operated upon it is apparent that this contraction of the neck is entirely independent of the prostate. When operating upon these cases, after making the perineal section, the finger, as it is introduced, in coming upon the vesical neck, instead of meeting with a muscle supple and extensible, encounters a hard, fibrous ring, perhaps friable, perhaps so resistant that the finger cannot penetrate into the bladder without considerable force.

The effects upon the bladder and kidneys are in the young man those of stricture of the urethra; in those more advanced in age, the picture is

that of prostatic hypertrophy, and corresponds to what has been designated as *prostatism without prostate*. It is usually a consequence of prolonged gonorrheal infection.

The symptoms and diagnosis of these two types (the inflammatory and retention) are thoroughly considered by the author. Occasionally we find stricture of the posterior urethra complicating prostatic hypertrophy, the symptoms not being relieved by prostatectomy until the stricture is operated upon.

Formerly the operation for the relief of stricture of the posterior urethra consisted of a perineal incision followed by cutting or tearing of the stricture. Hemorrhage and incontinence make this operation less desirable than that adopted since 1900, which consists of making a galvano-cautery incision into the neck of the bladder, after perineal section, with the Bottini galvano-cautery instrument, according to the method of Chetwood.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

Esophagoscopy in the Diagnosis and Treatment of Foreign Bodies in the Esophagus. — NEUMANN (*Monatsheft fuer Ohrenheilkunde, etc.*, Jhrg. XXXIX, No. 8) reports in detail his experience with the esophagoscope in dealing with foreign bodies in the esophagus. During the past eight years, twenty-four cases came under his observation. Among these was a child aged one and a half years and a woman aged seventy-two. In some of the cases the foreign bodies had been in position for weeks, and in a number all sorts of measures had been employed in attempting to remove them. The instruments employed by the author was a Mikulicz-Haker tube for adults and the Killian bronchioscopic tube for children. These were introduced with either hard or soft bougies used as guides. All examinations were made in the recumbent position. In seven of the cases a general anesthetic was required, while in the remainder local anæsthesia of the meso and hypo-pharynx, with a ten per cent. solution of cocaine, was sufficient. He compares the esophagoscope with the other means at our command for diagnosing foreign bodies in the esophagus, viz: the passing of sounds and the x-ray, and points out how small foreign bodies are overlooked which may be easily seen with the esophagoscope.

Of the twenty-four cases reported, the author was able to see the foreign body in twenty-one of them and to remove the same in nineteen. In two of the cases the foreign bodies were so firmly impacted that esophagotomy was found necessary. Both of the cases were fatal. According to Kalojeropoulos, the mortality of esophagotomy, under favorable circumstances, is 20 per cent. The writer concludes that esophagoscopy is not only a safe procedure, but the most certain method of diagnosing foreign bodies in the esophagus, and with its aid by far the greater number of foreign bodies can be removed.

The Operative Treatment of Purulent Meningitis.—HINSBERG (*Monatsschrift fuer Ohrenheilkunde*, Band 50, Heft 3).—During the last ten years a number of cases of purulent meningitis of otitic origin have been reported which did not terminate fatally. Three years ago the author collected three cases in which lumbar puncture had shown the presence of bacteria in the cerebro-spinal fluid, and which showed unmistakable clinical symptoms of meningitis. In these cases recovery followed simply the removal of primary infection in the mastoid. Since that time other cases have been reported. Up to 1901 only three cases of otitic meningitis had been reported in which recovery followed an incision of the dura and the evacuation of a collection of pus in the pia. Since that time seven other cases have been reported. In five other cases marked improvement followed the drainage, but they finally succumbed. In all the cases the symptoms before operation were such that death would have probably very quickly ensued had the drainage not been made. In all cases improvement followed immediately after operation. According to Witzel, as much of the bone should be removed as necessary to uncover all the diseased area of the pia. In some of his cases he has made an opening in the skull as large as the palm of his hand.

Another important point is the drainage; this Witzel does with gauze tampons, which are so placed that they drain from all points, and are allowed to remain fourteen days, after which they are carefully removed. The question is when to operate. The chances for recovery are, as a rule, much greater when drainage is made early.

Owing to the fact that in some cases of meningitis an exact diagnosis is not always possible, as lumbar puncture sometimes gives uncertain results. The writer believes an exploratory opening, when carefully made, does not endanger the life of the patient.

According to Hinsberg, a diffuse meningitis is no longer a contra indication for operation interference, but he believes every effort should be made to save these cases by operation.

Three Cases of Trifacial Neuralgia Due to Intra-Nasal Causes and Treated by Intra-Nasal Methods.—CANFIELD (*Laryngoscope*, September, 1905).—The writer reports three cases of trifacial neuralgia of nasal origin.

In the first case the patient had suffered with a right-sided trifacial neuralgia for two and a half years. The pain was characterized by paroxysms of extreme intensity; the pain was confined to the ophthalmic division of the fifth nerve. It was at first noticed as twinges in the skin covering the tip and also the right nostril. Later the skin of the cheek became involved, with a burning pain behind the eyeball. All forms of treatment had been employed, and the resection of the Gasserian ganglion had been considered, but abandoned owing to the condition of the patient's heart. Nasal examination revealed a slightly deviated septum, with the middle turbinate in contact for a quarter of an inch in diameter. The removal of the anterior end of the turbinate was followed by complete relief.

The second case was of eight years' standing, and had been sent to the hospital for resection of the Gasserian ganglion. Nasal examination revealed an area of pressure between the middle turbinate and the septum. The turbinate showed a marked polypoid degeneration. Appli-

cations of cocaine and adrenalin were followed by marked relief. Re-section of the middle turbinate was advised, but refused, as patient was satisfied with relief obtained from spray of cocaine and adrenalin.

The third case was also of some eight years' standing, the pain being limited to the right side of the nose and upper lip. The pain was almost constant. In this case there was also an area of pressure between the septum and middle turbinate. Complete relief followed the removal of the turbinate, and there was no return of the trouble.

Frontal Sinusitis; Two Cases of Death After Operation.—THOMSON (*Lancet*, August 12, 1905) reports two fatal cases of frontal sinusitis, from which he draws the following conclusions:

(1) In cases of multi-sinusitis it is well to drain the maxillary cavity some time before the frontal is operated on. Both cavities may be operated on at the same time, but if only one sinus is operated on at a time, it should be the frontal sinus, the lower being drained until it can be opened.

(2) In spite of free opening of the frontal sinus, the establishment of a large communication with the nose, and the avoidance of closure of the external wound, a slow infection of the bone may take place, leading ultimately to infection of the meninges. This may even be started in suppurating cavities on the opposite side to the one operated on.

(3) The local condition of the wound, as well as the pulse, temperature and feelings of the patient, may fail to indicate the onset of mischief. After one to three weeks this is revealed by headache, pain, tenderness and a puffy swelling on the forehead or around the eyes.

(4) When septic osteomyelitis has started, the most vigorous measures may fail to arrest it. It may last one and a half years before terminating fatally.

(5) The chief danger appears to lie in the ethmoid labyrinth, owing to its anatomical irregularities and to the difficulty of treating them satisfactorily.

(6) Up to the present, the operation which best meets these difficulties is that of Killian. In many cases a preliminary intra-nasal operation on the ethmoid is advantageous.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

A Case of Blasto-Mycitic Dermatitis.—HALSEY M. LYLE (*Kansas City Medical Index Lancet*, October 1905).—The author has had three cases of this condition in his practice. The one, the subject of this report, occurred in a colored man, aged fifty-two years. The patient was a miner, who frequently was in water and mud to his knees. The disease began three years ago in a small lesion on the right leg, between the knee and ankle. The disease became general, and the patient died in May from systemic involvement.

The Consideration of Late Hereditary Syphilis.—R. R. CAMPBELL (*Medical News*, October 7, 1905).—The author of this article brings up an interesting subject, which has long been a disputed point in syphilology. He says on several occasions young girls of from five to eighteen years of age have been shown at the meetings of the Chicago Dermatological Society, who presented undoubted lesions of tertiary syphilis without a history of extragenital infection or previous eruption of syphilis, and in whom none of the triad of symptoms of hereditary syphilis was present. In the discussion of these cases it was apparent that a difference of opinion existed as to whether these were cases of extragenital infection or of long periods of latency in hereditary syphilis. Then follows the question: Can hereditary syphilis manifest itself for the first time some years after birth by the presence of such late lesions as occur in the acquired form, and with the total absence of the triad of symptoms? The author states that we have grown away from the teachings of Kaposi and others who claim that cases of latent hereditary syphilis are not authentic. They say that if this disease be congenital or hereditary, there must have been infantile manifestations. We accept as facts the teachings of Fournier and others that these cases are authentic and do occur.

A Preliminary Report Upon the Spirochaete of Syphilis.—ANTONIO FANONI (*Medical News*, October 7, 1905).—The writer has examined a number of syphilitic subjects for the purpose of demonstrating and studying the morphological features and staining properties of the spirochaete recently described by Schaudin and Hoffman. The material for this work was obtained from twelve cases of primary and secondary syphilis, including material taken from chancres, inguinal glands, condylomata, papules and mucous patches. Scrapings were made with a sterile scalpel. Giemsa's original method was used for staining. The method recommended by Oppenheim and Sachs, which the author also used, is as follows: The slides, being first dried in the air, are placed in the following solution without fixation: 100 cc. of 5 per cent. carbolic acid solution with water, 10 cc. concentrated alcoholic solution of gentian violet. The slide is dried slowly by very gently heating it over a Bunson flame until it begins to steam. Wash in water and dry with filter paper. The spirochaete will appear stained very distinctly blue, and appear larger than those stained by the Giemsa stain. The author states, from his examinations thus far, that while the spirochaete pallida is more or less constantly present in syphilitic lesions, yet it requires patient and protracted search of the specimens to find it, and then usually in isolated form.

A Plea for the More General Use of Tuberculin by the Profession.—SIR T. MCCALL-ANDERSON (*British Journal of Dermatology*, September, 1905).—The writer remarks that when first introduced by Koch, medical men tumbled over one another in their eagerness to obtain a supply of this preparation, which was supposed to ring the death-knell of tubercular disease. The consequences were what might have been expected. It was used often in a reckless and indiscriminate manner, in cases altogether unsuitable, in doses too large and too frequently repeated, thus

leading to disappointment and disaster. Hence the extravagant laudation with which the discovery was hailed, and for which Koch was not responsible, soon gave place to an equally absurd depreciation of its merits, so much so that the writer believes it now finds no place in the armamentarium of the great majority of the medical profession. Upon looking over the indices of the last six volumes of the Transactions of the Dermatological Society of Great Britain and Ireland the author failed to find the heading "Tuberculin" in any of them. He states that, like most other powerful remedies, it is useless or even hurtful if not administered with the requisite knowledge and skill. Having employed it continuously since its discovery, he feels that he has come to know pretty well the most suitable class of cases and the precautions to be adopted in its use. Almost invariably cases of cutaneous tuberculosis have been benefited, and in many the manifestations have entirely disappeared. In his preliminary remarks the author illustrates the value of tuberculin, first in diagnosis, and, second, in treatment. Under the first head he cites three cases in which reaction proved satisfactory, and thus, through the diagnosis, improved the patient. He says that the tuberculin directs our attention to unsuspected foci of the tubercular disease. For instance, in a patient with lupus of the face, injections will demonstrate other areas of infection, if there are any. The author also places great weight upon the value of this remedy in the treatment of tuberculosis, and he suggests that in carrying out the treatment the following rules should be observed:

(1) The initial dose of the old tuberculin, in the case of an adult should not generally exceed $\frac{1}{2}$ cc. of 1 in 1000, and sometimes it is safer to begin with $\frac{1}{4}$ cc.

(2) If a given dose yields little or no result, it is usually safer to give a second of the same strength as the last, because the latter often acts much more severely than the former, of which many illustrations have been afforded by the temperature charts.

(3) The more pronounced the constitutional reaction the longer should the interval be before the following injection, an interval of several days of apyretic temperature at all events.

(4) Much greater care must be exercised in increasing the doses at the earlier than at the later periods of the treatment, because the system gradually gets acclimated to it; so much so, indeed, that while an initial dose of $\frac{1}{2}$ cc. of 1 in 1000 may raise the temperature to 103° or 104° , the final dose, say of 1 cc. of pure tuberculin, may have no result at all.

In directing attention to the subject the author has no wish to minimize the value of other methods of treatment, above all, that of the Finsen light, which is undoubtedly a very valuable addition to our therapeutic resources. On the other hand, an extended experience has led him to the conclusion that the armamentarium of the practitioner is incomplete if, in dealing with tubercular affections, it does not include the use of tuberculin, whether regard be had to questions of diagnosis or of treatment. Besides, it must never be forgotten that we are not all built upon the same mold, and that treatment suitable and efficacious for some patients is useless or even injurious in the case of others. And there can be no question that there are many cases of tubercular disease for which, from their situation or from their extent, the light

treatment is inapplicable, whereas neither situation nor extent contra-indicates the tuberculin treatment.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

Difficulties in Diagnosticating the Syphilitic Nature of Iritis.—E. AUBINEAU (*Ann. d'Oculist*, August, 1905) —The determination of the specific nature of iritis is beset with many difficulties. Nodular lesions of the iris, the so-called condylomata, are present also in tuberculosis of the iris. The presence of hemorrhagic plaques (the so-called papules of Desmarres) constitutes, in the author's opinion, an almost pathognomonic sign. In addition, the therapeutic test, a complete physical examination and a correct anamnesis are important diagnostic resources.

Hereditary Congenital Night Blindness Without Visible Ophthalmoscopic Changes.—W. W. SINCLAIR (*Ophthalm. Review*, September, 1905).—Dr. Sinclair refers to Nettleship's paper on "Some of the Forms of Congenital and Infantile Amblyopia," as well as to cases described by Morton and Tatham Thompson. The distinguishing feature of the cases described by Nettleship is a congenital stationary night blindness associated with inconspicuous fundus changes. The disease may run through several generations, transmission usually taking place through the mother. The majority of the individuals affected were males. Myopia was present in all. Sinclair had the opportunity of observing two members of a family afflicted in this manner and was able to construct a pedigree of similarly affected members, covering a period of five generations. These cases do not conform altogether to the clinical picture drawn by Nettleship, the following being points of special interest:

- (1) Females were affected as well as males.
- (2) In neither of the cases seen was the condition associated with myopia.
- (3) The ophthalmoscopic appearances were normal in every respect.
- (4) When a father or mother was unaffected their children invariably escaped. The affected members, though, with normal sight and full visual field in daylight, were night-blind to such a degree that when they had to go out anywhere after dusk one of the unaffected members had to accompany them in the capacity of a guide. When illumination fell below a certain point there was a sudden great reduction in the field. In a sister (not night-blind) the light minimum was two as against seven for one of the patients.

There was no consanguinity and no deafness or other defect. Indeed, all the members seen were "pictures of health." The condition seems best explained as an inherited diminution in the photo-chemical activity of the retina.

Note on the Treatment of Cancer by Radiotherapy.—E. VALUDE (*Ann. d'Oculist*, August, 1905).—Valude reviews four cases representing the various types of skin cancer affecting the external portions of the eye. Three were treated exclusively by radium and one by radium followed by the x-ray.

Case 1. Rodent ulcer recurrent after treatment by caustics and operation. The ulcer was oval with indurated borders and adherent crusts. Applications of radium failed entirely to check the disease or even to relieve the excruciating pain.

Case 2.—An indurated lump surrounded the entire inner angle of the right eye. The conjunctiva of the lower lid and the inner angle was the seat of a waxy new formation. The lid could scarcely be opened. Ten applications of a tube containing ten milligrams of bromide of radium resulted in notable diminution of the infiltration surrounding the cutaneous nodule and increased ability to open the lids. The unhealthy conjunctiva did not show any distinct improvement. Treatment by radium was then supplemented by twenty x-ray sittings. Final result: total disappearance of the marginal tumor and induration. The upper lid remained swollen and vascular and partly attached to the lower lid and the bulbar mucosa. There was no change in the conjunctiva.

Case 3.—A granulating tumor situated in the region of the lachrymal sack. Two applications of radium, a fortnight apart, resulted in the entire disappearance of the tumor.

Case 4.—A papilloma involving to an equal extent the margin of the upper lid and marginal mucosa. Previous unsuccessful treatment with caustics. A single application of radium sufficed to effect a complete disappearance of the tumor. No recurrence fifteen months later.

These cases, in Valude's opinion, tend to support the contention that only benign or slightly malignant cancers are amenable to treatment by any form of radiation. The opinion is expressed that operation (excision) is the method of choice for malignant tumors.

Asthenopia Due to Latent Hyperphoria.—G. D. HALLETT (*Med. Rec.*, October 7, 1905).—The patient had long worn glasses correcting a hyperopic astigmatism without relief from severe headaches, pain in the back of the neck, and supraorbital neuralgia with lachrymation and blepharospasm.

Hallett determined a left hyperphoria of $\frac{1}{2}^{\circ}$. A prism of $\frac{1}{2}^{\circ}$, base down, greatly increased the comfort of the patient. Subsequent examinations uncovered more and more of a latent hyperphoria, until finally a total left hyperphoria of $2\frac{1}{2}^{\circ}$ was discovered. The final prismatic correction—equivalent to $2\frac{1}{2}^{\circ}$ base down before the left eye—entirely relieved the head symptoms.

BOOK REVIEWS.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, assisted by H. R. M. LANDIS. September 1, 1905. Lea Brothers & Co., Philadelphia and New York. Six dollars per annum.

The volume before us, the third published this year, contains reviews of the literature on the following subjects: "Diseases of the Thorax and its Viscera, including the Heart, Lungs and Blood Vessels," by William Ewart; "Dermatology and Syphilis," by William S. Gottheil; "Diseases of the Nervous System," by William G. Spiller, and "Obstetrics," by Richard C. Norris. The subjects are covered in the complete and interesting manner, which has become characteristic of Progressive Medicine.

TRAITE DE GYNECOLOGIE CLINIQUE ET OPERATOIRE. Par S. POZZI, Professeur de Gynecologie a la Faculte de Medicine de Paris. Quatrieme edition. Masson et Cie. Editeurs. Paris. 1905.

Probably no other work on gynecology enjoys the same world-wide reputation as that of Samuel Pozzi, of Paris. Translated into almost all languages of the civilized world, it has become the standard text-book of gynecology. The advance made within the last several years, especially in regard to the operative treatment of gynecological diseases, has made a new edition of the work highly desirable.

Pozzi's Gynecology is beyond criticism, it is too well known to require a review of its scope or its contents, and thus we may limit ourselves to announce here that the first volume of the thoroughly revised fourth edition has just appeared.

THE OFFICE TREATMENT OF RECTAL DISEASES. By RUFUS D. MASON, M. D., Omaha, Nebraska. Third Edition. The Burton Company, Minneapolis, Minnesota. 1905.

As indicated in its title, this little volume is devoted to a consideration of all those diseases of the anus, rectum and sigmoid flexure, which can be treated medically or surgically without the use of a general anesthetic. The diagnosis is discussed very briefly, etiology, pathology, anatomy and major operations are omitted. There are excellent exhaustive treatises existing on rectal diseases, but there was need for a volume of this size, which would give to the physician in general practice, and also to the student, just enough information to familiarize him with this somewhat neglected subject. The fact that the first and second edition of this work have been sold out in less than four years, attests the value of this volume of 220 pages.

A TEXT-BOOK OF DISEASES OF WOMEN. By BARTON COOKE HIRST, M. D., Professor of Obstetrics, University of Pennsylvania. Second Edition, Revised and Enlarged. Octavo of 741 pages, with 701 original Illustrations, many in Colors. Philadelphia and London: W. B. Saunders & Company. 1905. Cloth, \$5.00 net; Sheep or Half Morocco, \$6.00 net.

Written on the same lines as his text-book of obstetrics, to which it may be called a companion volume, it gave every promise of attaining a similar success. The fact that two years after the appearance of the first edition the publication of a second edition

became necessary, clearly proves the popularity of this book. In this second edition the revision has been thorough. Forty-seven new illustrations have been added and 30 of the old ones replaced. In its present form, Hirst's gynecology can be heartily recommended to both the student and the practitioner.

MANUAL OF DISEASES OF THE EYE. By CHARLES H. MAY. 400 pages, 21 colored plates, including 60 colored figures; 360 engravings in the text. Fourth edition. Price, muslin, \$2.00 net. William Wood & Co., 51 Fifth ave., New York.

Dr. May's Manual, which may be considered typical of all that is excellent in such a book, has now reached its fourth edition. The universal esteem in which this work is held is attested by its translation into several continental languages. A number of changes, all for the better, have been incorporated in this edition. The type is selected so as to impress instantly upon the mind of the student the most important features of each paragraph. Thus the subject of the paragraph is indicated by heavy-faced type, and the most important words in the body of the paragraph are printed in italics. The student is thus enabled to obtain, at a glance, the gist of each subject. We observe that certain crude cuts of the earlier editions have been replaced by excellent photographs, and that the rather diagrammatic colored plates of the fundus have given place to others more truly representative of actual conditions. The colored plates, with which the book is profusely supplied, are extremely well done.

All things considered, we cannot imagine a better book to place in the hands of the beginner in ophthalmology. It also fulfills the needs of the general practitioner the exigencies of whose practice occasionally compel him to handle injuries and diseases of the eye.

THE CARE AND FEEDING OF CHILDREN. By L. EMMET HOLT, M. D., Professor of Diseases of Children in the College of Physicians and Surgeons, New York. Third Edition, Revised and Enlarged, D. Appleton & Company. 1905. Price, \$0.75.

This little volume gives in the form of questions and answers information practically upon every problem that may present itself to the young mother who raises her first child. In this new edition of the catechism much more space has been given to the principles of infant feeding. The reviewer's opinion concerning the value of the booklet is best illustrated by the fact that he makes a practice of recommending to every primigravida a perusal of this volume.

A COMPEND OF HISTOLOGY. By HENRY ERDMANN RADASCH. With 98 Illustrations. Blakiston's Son & Company, Philadelphia. 1905. Price, \$1.00 net.

This is one of the Quiz-Compend, and possibly one of the best of the whole series. The subject is presented in a clear and concise manner, and the book is up-to-date, as can be readily seen from a perusal of a chapter like that on placenta and umbilical cord.

LES PROCESSES GENERAUX. Tome Second. Par A. CHANTEMESSE and W. W. PÖDWYSOTSKY. Paris: Masson & Co. 1905.

The second volume of this splendid work is more replete than the first, deviating altogether from the method so far followed in France in the writing of text-books on pathology, from the emphasis with which diagnostic and therapeutic views are considered with the pathological aspects. This book is purely pathologic, and as such stands alone. It is unnecessary to state that it represents the modern state of pathologic opinion; it is international, as home and foreign work is equally-utilized for its contents. What must be pronounced as its highest achievement is the considera-

tion given to the results of the investigation of experimental pathology. A further merit consists in the freeness from apodictic statements and in the frankness with which the uncertainty of the truth of many generally accepted ideas is demonstrated. The work excels in the exactness of the histological subjects that is paralleled by a great number of equally exact and at the same time clear illustrations. As a source of general information on general pathology as well as a reliable representation of modern problems of this branch of science, the book has no superior, not even in the German or English literature.

COLOR-VISION AND COLOR-BLINDNESS. A Practical Manual for Railroad Surgeons. By J. ELLIS JENNINGS, M. D., (University of Pennsylvania). Formerly Clinical Assistant Royal London Ophthalmic Hospital, etc. Second Edition. Thoroughly Revised with Illustrations. 132 Pages, Crown Octavo. Price. Extra Cloth, \$1.00 net. F. A. Davis Company Publishers, 1914-16 Cherry street, Philadelphia, Pennsylvania.

This little manual, the first edition of which appeared in 1896, was written in the hope of stimulating further effort in the direction of eliminating the color-blind from the service of the railroads in the country. This second edition has been carefully revised and the following new matter added:

1. A chapter describing the methods of testing the Form and Light Sense.
2. A chapter giving the rules for the examination of the sight and hearing of railroad employees adopted by the House of Delegates of the American Medical Association.
3. Descriptions of Williams' and Thompson's lanterns; Williams' and Black's Semaphore Charts, and Abney's Pellet Test for central Scotoma.
4. Five new illustrations.

The manual fulfills precisely the purposes for which it is intended. The author's wide experience in this branch of ophthalmology has enabled him to make a selection of the most practical features of the subject. Dr. Jennings has compressed within a small compass a remarkably complete exposition of the subject, which is presented in a clear and concise manner. Altogether this is one of the best, if not the very best short treatise in the English language. A bibliography of the works referred to is appended.

A MANUAL OF THE PRACTICE OF MEDICINE. By A. A. STEVENS, A. M., M. D., Professor of Pathology in the Woman's Medical College of Pennsylvania, and Lecturer on Physical Diagnosis at the University of Pennsylvania. Seventh Edition Revised. 12mo of 556 pages, illustrated. Philadelphia and London: W. B. Saunders & Company. 1905. Flexible Leather, \$2.50 net.

There is possibly no other work of this size extant which contains so much information on the practice of medicine. The author's epigrammatic style, and a judicious elimination of theories and redundant explanations, enabled him to bring within a small compass a complete outline of the subject.

DISEASES OF THE LIVER, GALL BLADDER AND BILE DUCTS. By W. D. ROLLESTON, M. A., M. D., (Cantab) F. R. C. P. W. B. Saunders & Co. Philadelphia.

This special treatise on the liver and associated structures consists essentially of a series of monographs on the individual diseases of these organs. The material is drawn largely from the author's experience at St. George's Hospital, London, the statistics of which he uses liberally, without devoting undue space to the pathological side. The writer gives a thorough consideration to the fundamental pathological anatomy and physiology involved in each subject.

The section on cirrhosis of the liver is a most noteworthy study of the condition. To avoid further confusion between the anatomical and clinical classifications of cirrhosis the author divides cirrhosis broadly into two principal types: (1) the ordinary or portal cirrhosis; (2) the biliary type, with sub-varieties; under (1) the pigmentary cirrhosis; under (2) (a) hypertrophic biliary cirrhosis, and (b) obstructive biliary cirrhosis.

The subjects of diseases of the gall bladder and of the bile ducts are both clinically and anatomically so intimately connected that it is difficult to understand why the author should have chosen to consider them separately, and particularly why the subject of gall stones should have been placed exclusively among the diseases of the bile ducts. The etiology, the mechanical consequences, and the symptomatology of this latter condition have been most satisfactorily considered.

Not the least of the merits of the volume are its excellent illustrations.

ATLAS AND EPITOME OF OPERATIVE OPHTHALMOLOGY. By DR. O. HAAB.

Authorized translation from the German with editorial notes and additions. Edited by C. E. DE SCHWEINITZ, A. M., M. D., with 30 colored lithographic plates, and 154 text cuts. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

This "Operative Ophthalmology" makes the third of the beautifully illustrated volumes on ophthalmic subjects by the same author. The predecessors to the present volume are the "Atlas of External Diseases of the Eye" and "Atlas of Ophthalmoscopy."

This volume has been done into readable English that smacks but little of the German idiom. Dr. De Schweinitz has performed his editorial task in no perfunctory manner. His annotations are always helpful and illuminating. Whenever his views diverge notably from those of Dr. Haab, he explains his position fully.

The book is marred by that fault so widely prevalent among American medical publications, namely, careless proof reading. A few of the most obvious errors are as follows: Page 93, line 14, "0.05 m." should be "0.5 m." P. 97, line 10, the discerning reader will probably read "extracted" for the printed "extraced." P. 217, "Simeon Snellen" should be "Simeon Snell." P. 242, lines 6 and 8 from the bottom, "cornea" should be "conjunctiva." P. 275, last line, "palpebral" should be "bulbar." We trust that future editions will be free from these unfortunate blemishes.

DISEASE OF THE HEART AND AORTA. By THOMAS E. SATTERTHWAITE, M. D. E. R. Pelton: New York City.

This little work of some 290 pages presents in a concise form the salient points on diseases of the heart and aorta, for the student and practitioner of medicine. The author has not intended the work for an encyclopedia, but rather as a work for practical application. Little space is given to the anatomy or surgery of the heart, anomalies, tumors, etc. He has tried to avoid making it a compilation, but rather a presentation, based upon his personal experience of cardiac and aortic affections. The volume is based on a series of articles that appeared in medical periodicals, revised, however, and new chapters added. All in all it is a very satisfactory presentation of the subject and contains a number of excellent chapters. The chapters on Graves' disease, Nauheim methods with American adaptations and on arteriosclerosis are worthy of special mention.

DIE SEXUELLE FRAGE. Eine Naturwissenschaftliche, Psychologische, Hygienische und Soziologische Studie fuer Gebildete. Professor AUGUST FOREL. 588 Seiten. 23 Abbildungen. Verlag von Ernst Reinhardt. Muenchen. 1905. Price Mk. 8.

The number of treatises on the sexual question is large. The general interest of the lay public in the intricate problems of sexual life has prompted the publication of numerous books written solely for mercenary purposes. There do exist some very valuable scientific considerations of certain special topics of the problem, but there was a need for just such a book as this, which is written by a scientist, a psychiatrist of

world renown, who possesses the eminent advantage of personal experience with all phases of the problem. What is presented is not a compilation of the literature on the subject, but the fascinating personal views of a man who is unusually apt in overcoming the difficulties of elucidating the sexual question in all its manifold aspects. The writer presents his opinion in an admirably candid way. Of necessity he has to dwell upon sexual aberrations and describe other repugnant features of sexual life, but every sentence bears the stamp of the truly scientific aim of the work. Forel designates the volume "a scientific, psychologic, hygienic and sociologic study for the educated." It is written in a language which can be understood and enjoyed by every educated person, man or woman, and the latter does not need to fear being shocked by the contents. It is dedicated to the author's wife.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1905. Being a Yearly Digest of Scientific Progress and Authoritative Opinion on all Branches of Medicine and Surgery drawn from Journals, Monographs, and Text-Books of the Leading American and Foreign Authors and Investigators. Collected and arranged with critical editorial comments. Under the general editorial charge of George M. Gould, M. D. Philadelphia, New York, London: W. B. Saunders & Co.

It is entirely unnecessary to dwell at length on the many excellencies of this well known year-book. Suffice it to say that the volumes before us maintain, and in places excel, the high standard of excellence set by previous issues.

Not a little is added to the attractiveness and worth of the volumes by the numerous illustrations which have been selected with great judgment and care. It can hardly be said that the articles are all of equal merit, ophthalmology, for instance, having seemingly been slighted with respect both to amount of matter and number of critical comments.

But in presence of so much that is praiseworthy it were perhaps invidious to cavil at minor shortcomings. We can heartily recommend these volumes to the busy specialist or general practitioner who desires to keep in touch with the advances in all domains of medical endeavor.

INTRODUCTION A L'ETUDE CLINIQUE ET LA PRATIQUE DES ACCOUCHEMENTS. Par le Professeur L. H. FARABEUF et le Docteur HENRY VARNIER. Preface du Professeur A. Pinard. 362 Figures. Nouvelle Edition, Revue et Corrige'e. Paris: Georges Steinheil, Editeur. 1904.

Ever since its first appearance in 1891 this work was accorded a distinct place in the obstetrical literature of Europe. Farabeuf's splendid diagrammatic illustrations of the fetal positions and presentations, of the mechanism of labor and of the two chief obstetrical operations, version and forceps, have become classic and are copied in almost all text-books of the world. The first half of this volume deals with that part of obstetrics which as a rule in American text-books is termed "Physiology of Labor," while the second half contains a remarkably clear description of version, extraction and the application of the forceps.

A perusal of this work will prove of incalculable value especially to teachers of obstetrics.

DIE FRAU ALS MUTTER. Von Dr. HANS MEYER. Second edition. Published by Ferdinand Enke. Stuttgart. Price, Mks. 3.60.

This little volume has been prepared by the author, a teacher of obstetrics in the University of Zuerich, "to instruct and to quiet" the young mother who so often with dread instead of joy looks forward to the appearance of her first born, due to the combined effect of ignorance and misinformation.

The book is excellently written, and presents up-to-date teaching in a language which can be easily understood by every intelligent woman.

THE PSYCHIC TREATMENT OF NERVOUS DISORDERS. By Dr. PAUL DUBOIS, Professor of Neuropathology, University of Berne. Translated by Smith Ely Jelliffe, M. D., Ph. D., and William A. White, M. D. 8vo., cloth; 471 pages. Price, \$3.00 net. Funk & Wagnalls Company: New York and London. 1905.

This English translation by Jelliffe and White of DuBois' well-known book deserves to receive in this country the same degree of popularity it met with in France. It is a book that many have been waiting for. It presents in detail the methods of one of the most skillful advocates of what may be termed mental therapeutics, meaning by that, the understanding and the use of methods aimed to correct and educate and to persuade without the use of anything mystifying, nor of what is usually termed "suggestive." The book consists of a psychological introduction, written in a simple and easily understood manner, upon which the author is supposed to base his psychotherapy. This introduction is interesting, not on this account, but because it is so pleasingly written, and because it contains so much evidence that the author regards his psychology as a thing lying close to the every-day working plan of a neurologist. This attitude is a safe and hopeful one, at any rate, even if it does not tend to supply new psychological data. Of course it is easily seen that, even with all the author's attempts at explanation objectively, the fact is impressed more and more upon the reader that, in the main, the author has been successful in his treatment, not because his methods are based upon a correct appreciation of the psychology of the thing, but because his personality contains within itself just those elements which make his patients want to do as he says, and forces them to see their cases in the light he wishes them to do. In other words, the therapy advocated in this book is DuBois himself. Once understood, this makes the book even more attractive than before, and gives it a value which the author himself probably does not quite appreciate. The description of cases is clear, and we really are able to put ourselves in the place of the patient as well as the physician, very often. This book is recommended to all neurologists, as well as to those who have any sort of interest in the more advanced methods in use in neurological therapeutics. Especially should those read this book who still believe in the force of mystery, in the terrors of the large spark, and in the buzz of the static machine. To such, the truth and frankness of this book will appeal as an interesting variation to the self-deception which a long use of their methods produces. The translation is very well done, and adds much to the delight which one feels in reading the book.

OPHTHALMIC NEURO-MYOLOGY. A Study of the Normal and Abnormal Actions of the Ocular Muscles from the Brain Side of the Question. By G. C. SAVAGE, M. D., Professor of Ophthalmology in the Medical Department of Vanderbilt University. 39 full-page plates and 12 illustrative figures. Pp. 221. Published by the author. Nashville, Tenn.

Dr. Savage bases his thesis on the following hypothesis: "There are eight conjugate brain centers in the cortex by means of which the several versions are effected, and one conjugate center by which convergence is caused. These conjugate centers act alike on orthophoric and heterophoric eyes and when there is only one eye. Each of these is connected with two muscles, and the work done by the center and its muscles under the guidance of volition is normal work. The conjugate centers have no causal relationship with the heterophoric conditions, nor have they any power for correcting them.

There are twelve basal centers, each connected with only one muscle. If the eyes are emmetropic-orthophoric, these centers are forever at rest; but when there is any form of heterophoria, one or more of these centers must be ever active during all working hours. These centers do not cause heterophoria, but they stand ready to correct it. Under the guidance of the fusion faculty each basal center stands ready to act on its

muscle, whenever there is a condition that would cause diplopia. They may be called fusion centers." The author states in the preface that it has long been his desire "to help make the ocular muscle problem easy of solution." We fear that his hope in this respect is not destined to be realized through any illumination shed upon the subject by the work before us. Indeed, to our limited intelligence, it seems as if a veil of impenetrable darkness had been dropped between our eager gaze and the mystery of the ocular muscles. The author's imagination, untethered by the mere facts of anatomy and physiology, soars serenely in the cloudless heaven of speculation. It's tremendous fun—for the author—but rather wearing on the reader whose craving for one little bit of experimental proof remains from first to last unsatisfied.

PATHOLOGY AND MORBID ANATOMY. By T. HENRY GREEN, M. D., F. R. C. P. Tenth American, revised from the tenth English edition. Revised and enlarged by W. Cecil Bosanquet, M. A., M. D. Lea Brothers & Co., Philadelphia and New York. 1905.

Green's Pathology is too well known to require more than a few words in review. The new tenth edition, while enlarged and brought into accord with recent progress in pathology, has, on the whole, the same merits and the same faults as previous issues. Throughout the book the English fondness for definitions and for hard and fast statements is evident, and its text-book style, while well calculated for the purpose of cramming for those examinations which form so important a feature of English medical life, seems less justified than elsewhere in a book for reference. On the other hand, the note of dogmatism is conspicuously absent. Where several theories are to be discussed, all are stated with fairness and without prejudice. Thus, in the discussion of the etiology of malignant tumors, the various theories are stated in some detail, the evidence pro and con in each case being discussed entertainingly and with absolute fairness. On the whole, however, the book will meet the needs of the medical student who desires a brief and clear-cut statement on any point, rather than those of the practitioner or pathologist who seeks for a detailed account of the latest views on pathologic matters. The absence of all reference to the literature still further limits its usefulness to the latter class of readers. With a few exceptions the illustrations seem crude indeed to us who have been rather spoiled by the magnificent plates with which many of our recent books on pathology are so lavishly provided.

CLINICAL METHODS, A GUIDE TO THE PRACTICAL STUDY OF MEDICINE. By ROBERT HUTCHISON, M. D., F. R. C. P., and HARRY RAINY, M. A., F. R. C. P., F. R. S. E. Ninth edition. W. T. Keener & Co., Chicago. 1905.

As the sub-title indicates, this book is designed for the use of medical students, and if viewed from the standpoint of the ordinary quiz compend, it deserves all praise. It is interestingly written, and contains the essentials of laboratory medicine clearly set forth. On the other hand, its value as a book of reference for the physician is limited. Not being a marvel of condensation like Klemperer's little book, it attains conciseness at the expense of completeness. It contains most of the matters that the ordinary physician may be expected to know. When, however, he desires to make use of one of the less usual tests or methods of examination, and desires information on the point, he will probably find scant satisfaction here.

THE VERMIFORM APPENDIX AND ITS DISEASES. By HOWARD A. KELLY, A. B., M. D., and E. HURDON, M. D. Philadelphia and London: W. B. Saunders & Company. Price, \$10.00

This volume of 827 pages constitutes by far the most exhaustive work which has ever appeared upon this subject. The three chapters on the history are absolutely classical, and leave nothing to be desired. The four chapters on the anatomy are, without doubt, the best things of their kind which have appeared, and represent not only considerable new work, but an elegance in illustrating the same, which is found only at the hands of Max Broedel. As might be expected, chapters 29-30 on the relationship of appendi-

citis, gynecology and obstetrics, are masters of their kind. In fact, the criticism of this work most frequently heard from surgeons is, that the illustrious author's point of view, as well as the material at his command, biases him somewhat in his treatment of the subject. Nothing seems to have been neglected which has any bearing on appendicitis, as will be noted when the reader sees that the last chapter is on the medico-legal aspects of such cases.

ABDOMINAL OPERATIONS. By B. G. A. MOYNIHAN, M. S. (London), F. R. C. S., Senior Assistant Surgeon to Leeds General Infirmary, England. Octavo of 695 pages, with 250 original illustrations. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$7.00 net.

The amount of abdominal work which this author has done, and the number of original procedures in this field for which we have to thank him, make particularly valuable a volume which is naturally supposed to embrace his knowledge and experience. The volume is one of 695 pages and is illustrated, as so many English works are, with the desire rather for the truth of detail than for any particular artistic merit. The five sections into which the volume is divided deal, first, with General Considerations; second, Operations upon the Stomach; third, Operations on the Intestines; fourth, Operations Upon the Liver; fifth, Diseases of the Pancreas and Spleen. As will be seen, certain intra-abdominal organs are not treated, hence the title is in a measure misleading. It is interesting to note that the author gives mechanical appliances, such as the Murphy button, little or no place in stomach and intestinal surgery. This is all the more surprising since his earlier master, Mayo Robson, devised and still uses the well-known bone bobbin. Moynihan gives more than usual attention to the procedures which he has invented and to the forms of operations which he uses, only one of which, his gastroenterostomy, if no other procedure were mentioned, would make the book worth many times its price.

A TREATISE ON DIAGNOSTIC METHODS OF EXAMINATION. By PROF. DR. HERMANN SAHLI. Edited with editions by Francis P. Kinnicutt, M. D., and Nathaniel Bowditch Potter, M. D. Authorized translation from the fourth German edition. Philadelphia and London: W. B. Saunders and Co., 1905.

A translation of Prof. Sahli's monumental *Lehrbuch der klinischen Untersuchungs-Methoden* should meet with hearty welcome at the hands of English-speaking physicians. In company, perhaps, with one or two other similar works, it ranks easily at the head of text-books on clinical methods. The physician and the laboratory worker will equally find it indispensable for reference, and it is difficult to say whether higher praise should be accorded the writer's clear presentation of methods of physical or of laboratory diagnosis. The illustrations are uniformly excellent and usually original. It is a pity that the use of thick, heavy paper should have resulted in a bulky volume. The modern thin but opaque paper used by many English and American publishers would have made it a light, handy volume, without any sacrifice of essentials.

THE NATIONAL STANDARD DISPENSATORY. Containing the Natural History, Chemistry, Pharmacy, Actions and Uses of Medicines, including those recognized in the Pharmacopœias of the United States, Great Britain and Germany, with numerous references to other Foreign Pharmacopœias. In accordance with the United States Pharmacopœia, eighth decennial revision of 1905 by authorization of the Convention. By HOBART AMORY HARE, B. Sc., M. D., Professor of Therapeutics in the Jefferson Medical College, Member of the Committee of Revision of the U. S. P.; CHARLES CASPARI, JR., Ph. G., Phar. D.,

Professor of Pharmacy in the Maryland College of Pharmacy, Baltimore, Member of the Committee of Revision of the U. S. P.; and HENRY H. RUSBY, M. D., Professor of Botany and Materia Medica in the College of Pharmacy of the City of New York, Member of the Committee of Revision of the U. S. P. Imperial octavo, 1858 pages, 478 engravings. Cloth, \$7.25 net; leather, \$8.00 net. Thumb-index, 50 cents extra. Lea Brothers & Co., Publishers, Philadelphia and New York. 1905.

To practitioners of medicine and pharmacy this new work of the highest authority is of great importance. It contains, by authorization of the Convention, every article in the new edition of the U. S. Pharmacopœia, together with such explanatory notes and instructions as are necessary to a full understanding of the brief official statements. In addition it covers the essentials of the latest foreign Pharmacopœias, and the very important domain of unofficial drugs and preparations so largely in use. Of its authors, Dr. Rusby has treated the department of Pharmacognosy, including the minor as well as the major drugs of the entire globe, a service never before rendered; Prof. Caspari deals with Pharmacy, giving full information regarding methods and products, with descriptions and explanations of the most approved apparatus and tests; and Dr. Hare has written the section on Medical Action and Uses, giving a direct and compact presentation of modern therapeutics. An Appendix of 60 pages contains all necessary tables, formulas, tests, etc., for practical use. The General Index, of about 90 pages, contains full reference to every page in the text, making it a repertory of the world's knowledge of drugs; and the Therapeutical Index, of about 40 pages, contains, under the name of each disease, references to all the medicines employed in its treatment, leading the reader to the points in the text where the conditions indicating their employment and choice will be found. In a word, the National Standard Dispensatory is a new, practical and authoritative work containing information on all substances used in medicine and pharmacy at the present day. The volume is embellished with 478 new and instructive engravings in the text.

CLINICAL TREATISES ON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. Part VI., Drink Reduction (Thirst Cures), Particularly in Obesity. New York: E. B. Treat & Co. By PROF. CARL VON NOORDEN.

This is one of a series of articles on Metabolism by Prof. von Noorden, which has been translated into English under the direction of Boardman Reed, M. D. Like all of the author's work on this subject, it is a most satisfactory presentation of the subject.

DISEASES OF THE HEART. A Clinical Text-Book for the Use of Students and Practitioners of Medicine. By EDMUND HENRY COLBECK. Second edition, revised and enlarged. W. T. Keener, Chicago. 1905.

This little volume is intended to present the clinical side of the subject of heart disease in a form suitable to the requirements of students and practitioners of medicine. It seems to fulfill the requirements quite well. To this volume have been added the consideration of mechanical heart strain, the Stokes-Adams syndrome, and the instrumental determination of blood pressure. The latter subject, however, has not received the consideration which it seems to merit.

BAKTERIOLOGISCHES TASCHENBÜCH. VON DR. RUDOLF ABEL, G. AUFLAGE. Würzburg: A. Stuber.

The new edition of Abel's little book deserves the same recommendation that was given to the former editions. Its character is not changed; the addition of some recently published methods of procedures has brought it up to date.